

*2nd Edition of
Euro-Global Conference on*

PEDIATRICS AND **NEONATOLOGY**

September 23-25, 2019 | London, UK



Theme:


Discover the difference in Pediatrics
& Neonatology for a better future


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SEPTEMBER 23-25, 2019
LONDON, UK

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Ronald L. Thomas

Wayne State University School
of Medicine, USA



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Albany Medical Center
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South Tees Hospitals NHS
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KanchiKamakoti Childs Trust
Hospital, India



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Universidad Nacional Autono-
ma de Mexico, Mexico



Wendy N Phoswa

University of KwaZulu-Natal
South Africa



Yajuan Wang

Beijing Children's Hospital
China



Yi Ren

The Affiliated Xuzhou Hospital
of Southeast University, China

Thank You
All...

Welcome Message



Dear Colleagues,

The globalization of society, migration, transition and translational medicine all pose new challenges to contemporary paediatrics. We are witnessing changes in morbidity and mortality in the population, insights into intrauterine and early post-natal programming of disease, and the influence of negative environmental factors on the growth and development of children. Understanding new pathogenic mechanisms, but also the psycho-social and ecological conditions in which children are growing up in the contemporary world are preconditions for our timely and rational intervention. The necessary interdisciplinary and holistic approach to health and disease in children is



founded on continual evidence based education and international exchange of experience.

I believe that precisely participation in the 2nd Euro-Global Conference and Paediatrics and Neonatology, EPN 2019, will enrich us with new insights and empower us for the tasks before us.

Welcome to EPN 2019 in the eternal city of London.

Irena Bralić, M.D., Ph.D.

Associate Professor of Pediatrics
University of Split, School of Medicine
Croatia

Welcome Message



Dear Colleagues,

On behalf of the scientific organizing committee, It is my great pleasure and honor to welcome you all to attend the 2nd Euro-Global Conference on Pediatrics and Neonatology (EPN 2019) held in the world city, London, Great Britain.

In the field of Pediatrics and Neonatology technical development rapidly changes the foundation of Nursing care and Medicine as we know it in this field. At the same times it is a huge challenge to improve quality as well as improve and develop children's and parents own participation in their care. New ways of caring and new places to care are evolving around the globe. How we are going to tackle the challenges in front of us to reach the goals of the agenda 2030 to build an equal and

sustainable health care around the globe for children in all ages with diverse health care needs. This conference aids to foster communication among researchers and practitioners working in a wide variety of scientific areas and thus help in the development of research on Pediatrics and Neonatology. I hope to meet you in London.

Janet Mattsson

Janet Mattsson

The Swedish Red Cross University College
Sweden

Keynote Speakers



Irena Bralic
University of Split
Croatia



Janet Mattsson
The Swedish Red Cross
University College, Sweden



Karen Smith
Children's National Health
System, USA



I.M. Rogers
AIMST University
Malaysia



David J R Hutchon
Memorial Hospital
England



Ronald L. Thomas
Wayne State University School
of Medicine, USA

About MAGNUS GROUP

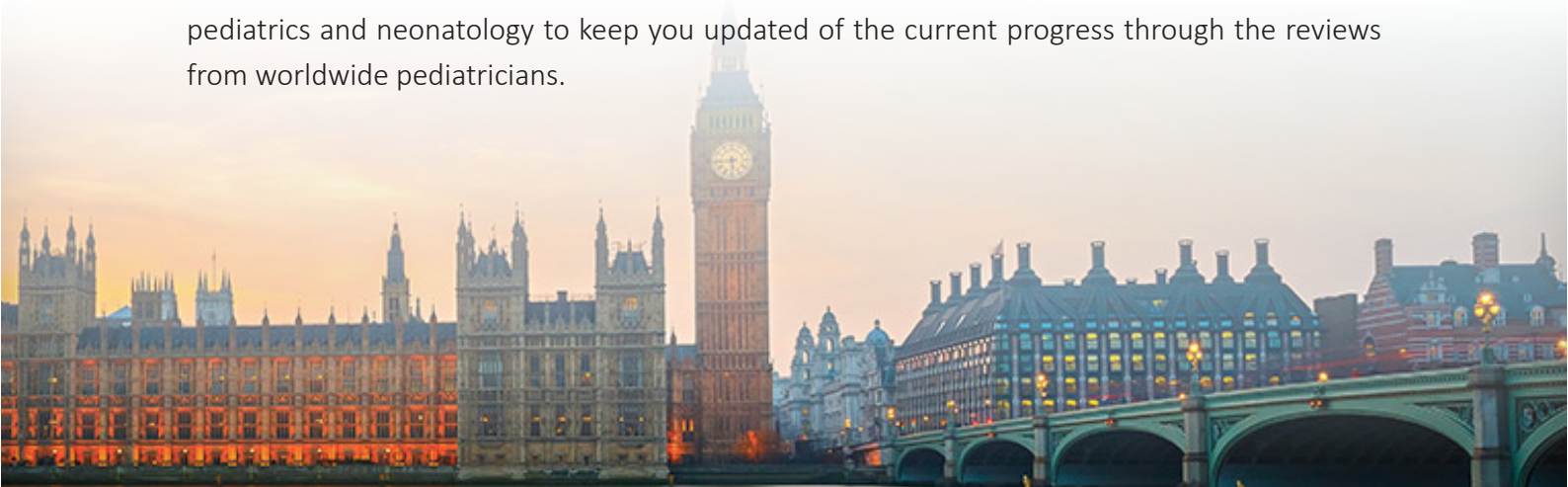
Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

About EPN 2019

EPN 2019 serves as a platform for pediatricians, neonatologists, researchers, students and Healthcare professionals from academia and industry to express their views and research through keynote, oral and poster presentations. It provides a high quality forum for researchers and healthcare professionals to address the major issues relating to pediatrics and neonatology and aims to improve the care of children, neonates and adolescents by providing a platform to exchange and discuss on the major challenges and approaches to overcome the childhood problems.

Scope of EPN 2019: It provides you with the enhanced information on the entire spectrum of pediatrics and neonatology to keep you updated of the current progress through the reviews from worldwide pediatricians.



DAY 1

KEYNOTE FORUM

2ND EDITION OF EURO-GLOBAL CONFERENCE ON

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EPN-2019





Biography

Irena Bralić, M.D., Ph.D. Associate Professor of Pediatrics is a head doctor (Primarius), a specialist paediatrician, Associate Professor of Pediatrics, and scientific associate at the Medical Faculty of the University of Split, permanently employed in a Specialized Paediatric Practice.

She is the author and editor of the university textbook "Prevention of Diseases in Childhood", the university handbook "Vaccination and Vaccines", and the sold-out handbook for parents, "How to Grow Up Healthy". She has published in recent journals, and she has been an invited speaker at many foreign and national conferences. She is the head of the scientific project of the Ministry of Science of the RC entitled; "Secular changes in growth and the appearance of obesity during puberty". She is the head of category 1 courses in the life-long education of doctors, in the series "New Challenges in the Prevention of Diseases in Childhood". Her narrow field of professional and scientific interest are preventive programmes in childhood and adolescence, vaccination, growth and development, and obesity. She is a member of the Management Board and Treasurer of the Croatian Paediatrics Society.

Obesity in children and adolescents

Irena Bralić, M.D., Ph.D.

University of Split, School of Medicine, Croatia

Obesity is a global public health problem. The prevalence of obesity and the risk of obesity is rising both in childhood and in adolescence throughout the world and also in Croatia. Although obesity causes short-term and long-term, direct and indirect effects on the health of an individual and the population, parents usually do not recognise it as their child's health problem. Obesity may be primary or secondary, the causes endogenic and exogenic. Obesity most often occurs as a result of an imbalance between excessive intake and reduced consumption of energy.

The clinical challenges are the relatively long, asymptomatic course, the objective diagnostics of obesity and obesity-associated diseases, and the most often frustrating results of treatment. Due to the very limited possibilities of treatment in childhood, prevention is the foundation of intervention. Prevention of obesity begins with the prenatal formation or correction of incorrect dietary and lifestyle habits. Primary prevention of obesity is aimed at anthropometric monitoring and education of the healthy population. Secondary and tertiary prevention of obesity comprises specific interventions through clinical and laboratory supervision of the population at risk of developing obesity, specifically adjusted to the individual needs of the obese child.

Multi-discipline, continuous and professionally coordinated preventive programmes are the foundation for resolution of the problem of obesity in childhood and adolescence, which require the engagement and cooperation of families, the health and education systems, and the support of the media and the social community.



Biography

Dr. Ronald Thomas, Ph.D. holds a Doctorate in Theoretical Evaluation and Research. He has been the lead statistician since 1997 with the Children's Research Center of Michigan (CRCM), within the Department of Pediatrics at Wayne State School of Medicine. He is charged with assisting and training others in becoming more proficient in scientific inquiry, research strategies, evaluation and appraisal of studies, models and designs, and statistical analyses. He has had continual funding on governmental, state, and foundation grants since 1997. He has published over 170 peer-reviewed publications in the areas of pediatrics, including perinatal and pediatric pharmacology and infant health.

The danger of relying on the interpretation of p-values in single studies: Irreproducibility of results from clinical studies

Ronald L. Thomas

Wayne State University School of Medicine, USA

P-values are a common component and outcome measure in most every published observational or randomized clinical trial. However, many physicians, researchers, journalists, and policy makers have little or no training in statistics and are forced to rely on the interpretation of results based solely on the authors or secondary sources. Statistical analysis of data often involves the calculation and reporting of the p-value as statistically significant or not, without much further thought. But p-values are highly un-replicable and their definition is not directly associated with reproducibility. Findings from clinical studies are not valid if they cannot be reproduced.

Although other methodological issues relate to reproducibility the p-value is arguably at the root of the problem. Many common misinterpretations and misuses of the p-value are practiced. The American Statistical Association (ASA) recently published its first ever policy statement concerning their proper use and interpretation of p-values for scientists and researchers. This policy statement addresses the misguided practice of interpreting study results based solely on the p-value, given that it is often irreproducible in subsequent, similar studies. We investigated the irreproducibility of the p-value by using simulation software and results reported from a published randomized control trial. We show that the probability of attaining another statistically significant p-value varied quite widely on replication. We also show that power alone determines the distribution of p, and will vary with sample size and effect size. In conclusion, p-values interpreted solely by themselves, can be misleading potentially leading to biased inferences from clinical studies.

Audience Take Away:

- Many common misinterpretations and misuses of the p-value are practiced. It is essential to bring more awareness to this critical issue by providing a deeper educational understanding of the p-value to the proper interpretation of study results.
- P-values are highly un-replicable and their definition is not directly associated with reproducibility. Findings from clinical studies are not valid if they cannot be reproduced.
- To illustrate this issue we investigated the irreproducibility of the p-value by using simulation software and results reported from a published randomized control trial.
- We show that the probability of attaining another statistically significant p-value varied
- Quite widely on replication. We also show that power alone determines the distribution of p, and will vary with sample size and effect size.

- P-values interpreted solely by themselves, can be misleading if interpreted devoid of context potentially leading to biased inferences from clinical studies.



Biography

I.M. Rogers is a retired surgeon with a long-standing interest in the cause. He made the earliest discovery of neonatal hypergastrinaemia and also was, as far as I know, to document hyperacidity in the pyloric stenosis (PS) baby. He first proposed an inherited primary hyperacidity as the cause and subsequently refined this theory in the light of evidence showing insensitivity of the negative feed-back between acid and gastrin in the early weeks. He is the author of *The Consequences and Cause of PS of Infancy with a survivor of PS-Dr. Fred. Vanderbom* available on AMAZON ISBN 978-3-659-52125-6 and has just finished another book *Pyloric stenosis of Infancy-the Great Mystery unravels-* again published by Amazon all profits to the Safe Water Trust. Available 2019. He is also the author of many papers on the subject of cause.

Pyloric stenosis of infancy-the great mystery unravels

I.M. Rogers FRCS, FRCP, PGCMedEdu

AIMST University, Malaysia.

Evidence to support the hyperacidity theory of pathogenesis. This will consist of titratable acidity of fasting juice both before and after pyloromyotomy. The peak acidity displayed by all babies at 3 weeks of age is analysed with regard to the immature and insensitivity of the negative feed-back between acid and gastrin in the early weeks. Male premature babies secrete more acid than matched females. Since duodenal acidity is a potent stimulant of sphincter contraction pyloric hypertrophy (the tumour) develops and gastric outlet obstruction (GOO) naturally presents at 3-4 weeks principally in the male child. Neonatal hypergastrinaemia facilitates the hypertrophic process.

The first born phenomenon is due to a novice mother too frequently feeding her child even when vomiting starts. GOO obstruction by positive feedback involving elevated gastrin levels further increases acid secretion.

All the clinical features are explained by this theory. Temporary treatment with acid-blocking drugs pre-operatively rapidly restores a normal acid-base status. In the milder cases temporary prescription of acid-blocking drugs with relative underfeeding may give a long term cure.

See *Pyloric stenosis of Infancy-the great mystery unravels*. I.M. Rogers FRCS all proceeds to Charity (the Safe Water Trust) Available on AMAZON 2019

Audience Take Away:

- A logical simple cause.
- A simple approach to making medical and surgical management even more safe.
- An informed approach to the early treatment of the mild classical case especially in underdeveloped countries.

DAY 1

SPEAKERS

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Creating a workplan for emergency evacuation of a pediatric healthcare facility

Joelle N. Simpson MD, MPH

Safety & Emergency Management, Children's National Medical Center, Washington, DC, USA

Health care facilities should have solid evacuation and shelter-in-place plans for patients and staff. Whether planned or unplanned, emergent or urgent, evacuation of a pediatric healthcare facility can have profound ramifications on patient safety and the continuity of operations for an institution. This presentation will discuss some considerations for creating a workplan for emergency evacuation of a pediatric healthcare facility accounting for general and critical care patients including the neonatal unit.

Audience Take Away:

- Review principles of patient evacuation triage for a pediatric healthcare facility including lessons learned from real world event.
- Develop a work plan template/checklist for evacuation training for pediatric healthcare providers
- Assess the unique needs of pediatric critical care patients in evacuation processes

Biography:

Dr. Joelle N. Simpson is a Pediatric Emergency Medicine physician with expertise in Disaster medicine. She is the Medical Director for Emergency Preparedness at Children's National Medical Center (CNMC) in Washington, DC and has an academic affiliation with George Washington University (GWU) School of Medicine and Health Sciences. She is an advisor on local and federal government committees as a pediatric disaster preparedness expert. Dr. Simpson received her undergraduate degree from Harvard University and her MD and MPH degrees from The GWU School of Medicine and Health Sciences. She completed her pediatric residency at Johns Hopkins and her pediatric emergency medicine fellowship at CNMC.

The role of laser in tongue tie division: A pilot study

Gera Parshotam, Talijancich Kaye*

¹Consultant Paediatric & Neonatal Surgeon, Perth Paediatrics, Perth, WA, Australia.

²Paediatric Registered Nurse, Perth Paediatrics, Perth, WA, Australia

Background: Laser Tongue Tie Division is an option suitable for neonates, older children and adults. No general anaesthetic is used, but an analgesic gel is applied. The procedure is very quick, taking only 2 to 3 minutes to perform.

Aim: To assess the outcome of patients who underwent tongue tie division with Diode Laser at Perth Paediatrics.

Methods: We conducted a retrospective review of the 49 children who underwent Laser Repair of Tongue Tie at Perth Paediatrics between 30/01/2017 and 10/7/2017. The age of the children ranged from 4 days to 6 months. We assessed the outcome after 1 to 6 months, with a questionnaire via telephone. Of the 49 children's mothers telephoned, a total of 41 children were contactable. The outcome was assessed in terms of improvement of breastfeeding comfort to the mother and procedural complications.

Results: The outcome was assessed in terms of improvement in breastfeeding and lack of discomfort. 41 mums had immediate relief, which was rated good to excellent. 3 mums had poor immediate relief but there was improvement after 2 weeks of procedure and was rated good. Only 2 out of 41 mothers reported no relief in improvement in breastfeeding. Furthermore, it was noted that reflux symptoms in 3 children decreased post laser treatment and a weight gain increase was noted. There were no immediate or delayed procedural complications in terms of post-operative bleeding, infection, scarring or recurrence.

Conclusion: 95.2% (39/41) of children who underwent Tongue Tie Division with Laser, were reported by their mothers, to have improvement in breastfeeding improvement in terms of latch/leakage. This outcome also included an improvement in the mother's discomfort. ie. nipple pain, nipple damage and mastitis.

Biography:

Kaye studied Bachelor of Science – Nursing, at Curtin University and graduated as a Registered Nurse in 2008. Kaye currently works as Registered Nurse (part-time) looking after babies under 28 days at Neonatal Department at Princess Margaret Hospital for Children, Subiaco, Perth (WA). Her previous paediatric nursing experience includes working at the Emergency Department, Gastroenterology and Immunology Departments at Princess Margaret Hospital for Children. She has also worked for Edith Cowan University as a Paediatric Clinical Facilitator. Kaye commenced at Perth Paediatrics in 2016. She brings her skills and dedicated passion of working with children, to the first multi-specialty private paediatric clinic in Western Australia.

Not a measly discovery

Linda Price DNP, APRN-BC

Pediatric System Educator, WellStar Health System, Atlanta, Georgia, USA

This presentation will discuss the measles, a childhood communicable disease, and emphasize the importance of parental education. Significantly, the presentation will elaborate on important roles portrayed by healthcare providers with improving vaccination rates and gaining parental compliance.

Recently, there has been a hasty resurgence of measles outbreaks in the United States, which have resulted in parental panic and fear. In 2018, there were approximately 372 confirmed measles cases (Center for Disease Control and Prevention [CDC], 2019). Amusingly, this year alone, there have been 127 documented measles cases, with three linked to metro Atlanta (CDC, 2019). Ironically, this population consists of individuals who were unvaccinated and under vaccinated.

Notably, the measles (Rubeola) is a vaccine preventable disease (VPD), denoting its most detrimental effect to the pediatric population, especially infants and children who are immunocompromised. Hence, it is high priority for healthcare providers to implement a stepwise approach to vaccination awareness by offering parental education during the prenatal, post-natal, and initial infant visits. As an effort to eradicate measles and seal parental knowledge and vaccination compliance gaps, evidence-based vaccine education must be initiated and include blended methods of visually enhanced learning and motivational interviewing (Kubin, 2019).

Overall, healthcare providers play crucial roles in improving vaccination rates. Vaccine programs are successful and notably prevent 2-3 million deaths globally (World Health Organization, 2019). The Measles, Mumps, and Rubella (MMR)Vaccine is a two dose series, with the first dose given between 12-15 months of age and the second dose given between 4-6 years of age. Educating parents regarding communicable diseases and prevention must take top priority.

Audience Take Away:

- The audience will understand the importance of vaccination compliance and how healthcare providers play key roles in preventing communicable disease outbreaks.
- The presentation will provide healthcare providers with guidance on how to integrate evidence-based vaccine education during office visits. Individuals will learn how to implement a step-wise approach to vaccine related parental education. This is current and relevant research which diverse faculty settings may use to expand their teaching. Furthermore, this presentation focuses on a basic solution to prevent the spread of communicable diseases. Provide vaccine education to parents will address any myths that parents may have regarding vaccinations and teach parents how to locate reliable vaccination resources on the internet. Vaccination awareness is beneficial to both healthcare providers and parents. The presentation entails information regarding the importance of attaining herd community and increasing vaccination rates.

Biography:

Dr. Linda D. Price is a Pediatric Nurse Practitioner and professional educators. She currently serves as the pediatric system educator for WellStar Health System in Atlanta, Georgia. In addition, she served six years as a nursing professor for Chamberlain University in Atlanta, Georgia where she taught undergraduate bachelor of nursing in science students. Dr. Price has worked for several children's hospitals. She is the co-editor of *The Pediatric Post*, WellStar Health System's Pediatric News Letter. She is passionate about designing and facilitating professional development events.

CMV - associated enterocolitis in neonates, case reports

N. Vaynshteyn^{1,2*}, E. Britanishskaya², J. Mitina², T. Matveeva², A. Chubarova¹, N. Krivova².

¹Pirogov Russian National Research Medical University, Moscow, Russia

²Speranskiy Moscow State Children Hospital №9, Moscow, Russia

Background: Intestinal CMV infection is associated with watery diarrhea in infants or necrotizing enterocolitis (NEC) in preterm neonates. The cases of CMV enterocolitis and necrotizing enterocolitis are presented. Two term infants about 6 weeks old developed severe watery diarrhea and bloody stool in one case. One preterm infant had NEC deterioration associated with primary postnatal CMV infection.

Case 1: Previously healthy full term (3700/52; 8/9) breast fed boy developed enterocolitis with bloody stool, vomiting and irritate condition on 49 day of life (DOL). He was admitted in our hospital three days later. He had hyponatremia (Na-125-129 mmol/l), normal leukocytosis ($17,7 \times 10^9$) with increased bands level (17%). He was treated with ceftriaxone, salin, electrolytes and glucose infusion during a week. All bacteriology (Salmonella, Shigella, Campylobacter, E coli O157) and virology (Rota, Adeno-, Entero- and Norovirus) stool tests were negative. Blood real-time PCR was positive for CMV. Specific IgG and IgM were revealed (Table 1). Specific anti-CMV- intravenous immunoglobulin (IVIG) 0,1 g/kg was administrated. The boy's condition was improved and therapy was stopped. Few days later he developed severe watery diarrhea 10 times a day. In the same time he had a febrile temperature during 3 days. He had increased leucocytes and bands levels in CBC. Abdomen ultrasound revealed intestine wall thickening with mesenteric lymph nodes enlargement. CMV infection was confirmed from a blood, urine, saliva and stool samples by PCR (Table 1). Acute CMV enterocolitis was treated with IV ganciclovir (5 mg/kg twice a day) during 2 weeks. Specific IVIG (0,1 g/kg) and nonspecific IVIG (1g/kg) were given additionally. The boy needed parenteral nutrition in 2 weeks. He totally recovered without complications. His body measurements and neurodevelopmental skills were good in his 6 months old.

DOL	55	60	70
CMV IgG, AU/mL(N < 6)	188.4	144.2	
CMV IgM Index (N < 0,85)	1.42	3.34	
Blood PCR CMV	++		+
Urine PCR CMV, copies/ml			67660
Saliva PCR CMV, copies/ml			377
Stool PCR CMV, copies/ml			2939

Table 1. Case 1. Ig and PCR results

Case 2: Previously healthy full term (3210/50; 8/9) breast fed girl started to get formula because of breast milk insufficiency. Since first month she was suffered from cow's milk protein allergy. On 51 DOL she developed enterocolitis with severe watery diarrhea, febrile temperature and seizures because of electrolytes disturbance. Her laboratory tests were markedly abnormal: hyponatremia (120 mmol/l). She had hepatosplenomegaly. Abdomen ultrasound revealed intestine wall thickening. Leukocytosis ($38-46 \times 10^3$ /mcl), increased myelocytes (12%), metamyelocytes (14%) and bands (15%) levels were diagnosed. CRP was 116 mg/l. CMV infection was confirmed from a blood by real-time PCR. AntiCMV IgM level was positive. Acute CMV enterocolitis was treated with antibiotics, salin, electrolytes and glucose infusion. IV ganciclovir (5 mg/kg twice a day) was started. Specific anti-CMV-IVIG was given (0,25g/kg). The girl was fed reduced volume of lactose free deep hydrolyzed protein formula. Stool watery loss achieved about 400 ml/day (100 ml/kg/d). Enteral nutrition was stopped. TPN was provided for 10 days. The girl was discharged in 3 months with good healthy condition. Her neurodevelopmental outcome and physical skills were good in her 1 year old.

Case 3: A 9-week-old, former 27-week (920/35; 6/7) estimated gestational age premature boy had recurrent episodes of necrotizing enterocolitis. Last episode started in 70 DOL. Serum procalcitonin was 2,41 ng/ml. Abdomen ultrasound

revealed intestine wall thickening at 3,1 mm, gallbladder wall thickening at 1,5 mm and free fluid in lateral canals at 15mm. The infant was treated with antibiotics and TPN. Primary CMV infection was confirmed from a saliva and blood samples by real-time PCR (Table 2). That implicated cytomegalovirus as the etiology of the NEC deterioration. IV ganciclovir (5 mg/kg twice a day) was started. After 2 weeks of the treatment viral load did not decrease. Anti-CMV IgM level was positive (Table 2). Specific anti-CMV-IVIG was added (0,2g/kg) and ganciclovir continued. NEC symptoms were resolved. The boy was discharged at 3,5 months old. His weight was 2595 g (+ 575g during 32 days).

Age, months and days	2m13 d	2m 16d	2m 22d	3m	3,5m
CMV IgG, AU/mL				105,7	
CMV IgG, avidity Index				0,55	
CMV IgM Index(N< 0,85)				5,74	
Blood PCR CMV, copies/105 human cells	negat	565		886	negat
Saliva PCR CMV, copies/ml	++		negat		
CSF PCR CMV, copies/ml			negat		

Table 2. Case 3. Ig and PCR results. CSF – cerebrospinal fluid

Results: These patients had postnatal intestinal CMV infection. Two term infants developed severe watery diarrhea. Preterm infant had NEC deterioration. They were treated with specific IV immunoglobulin and IV ganciclovir during 2-4 weeks. They needed parenteral nutrition in 2-4 weeks. All of them totally recovered.

Conclusions: Cytomegalovirus is frequently overlooked in the differential diagnosis of enterocolitis and chronic gastrointestinal symptoms in infants. In case of severe intestinal cytomegalovirus infection we recommend a complex therapy including specific intravenous immunoglobulin and intravenous ganciclovir.

Biography:

Natalia Vaynshteyn, MD, Head of the Neonatology department, Speranskiy Moscow Children Hospital. Associate professor of the Pediatrics department, Pirogov Russian State Medical University.

The Neonatology department in the Speranskiy Children Hospital carries out diagnostics and treatment neonatal infectious and non-infectious diseases, such as UTI, respiratory tract, jaundice, CNS, GUT, hemorrhagic and nutritional disorders. Natalia Vaynshteyn has special interests in: neonatal infections, hemostasis disorders, nutritional problems in neonates, innovative technologies in medical education.

Hypoxic ischaemic encephalopathy in neonates: What do we learn from the case reviews?

Shalabh Garg

South Tees Hospitals NHS Foundation Trust, UK

Hypoxic Ischaemic Encephalopathy (HIE) is a devastating illness that has long lasting impact on families as well as staff members. There are a number of national projects that are currently being undertaken to reduce the incidence of HIE, still births and early neonatal deaths due to complications during labour and delivery. Most of these projects involve a systematic review of all the circumstances leading on to the final event including the key members of the team who can bring all the documented and un-documented concerns and viewpoints to the table. This includes a sincere collaboration amongst obstetricians and neonatologists. As results of such a systematic analysis, a number of key factors come into light which may potentially lead on to either the event causing HIE or may be able to prevent the severe outcome. In this talk, Dr Garg will go through the whole process and how the learning points have been implemented into the practice.

Audience Take Away:

- Highlight important is the independent review of the whole situation
- What steps can be undertaken to reduce the incidence of HIE?
- What actions and decisions can make the resuscitation more effective?
- How the communication amongst the team members is crucial.

Biography:

Dr Shalabh Garg is a Consultant Neonatologist with a special interest in quality improvement in the NICU through clinical case reviews. He is currently working in NorthEast of England at James Cook University Hospital in Middlesbrough. He leads the mortality review programme in the department and is the neonatal lead for the national projects including Each Baby Counts, MMBRACE, Perinatal Mortality Review Tool as well as Health Safety Investigation Board. He has also been appointed as the National Independent Reviewer by Royal College of Obstetrician and Gynecologists to review the HIE cases for the national reports.

Gene expression for disease stratification and prognostication in neonatal encephalopathy

Paolo Montaldo^{1,2}

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Neonatal encephalopathy is a leading cause of neonatal death and lifelong disability accounting for 1 million deaths every year with 99% of the disease burden in developing countries. Most putative neuroprotectants, including cooling therapy, are effective only when initiated within few hours of birth, hence early identification of 'at risk' encephalopathic infants is vital. Magnetic resonance imaging and spectroscopy are considered gold standard for predicting long-term adverse outcomes after neonatal encephalopathy. However, they are limited by the inability to perform a scan as soon as possible after birth. Inevitably, clinicians have to make treatment decisions before this information is available. Therefore, it is vitally important to identify babies at risk of long-term neurodisability as early as possible after birth, to initiate preventative therapy. In the past decade, genomic and transcriptomic signatures have revolutionized personalised chemotherapy, particularly in breast cancer. Our group and others have effectively exploited host transcriptomic profiling for the rapid diagnosis of bacterial infection and Kawasaki disease, and for disease stratification in tuberculosis.

We have recently shown that babies with neonatal encephalopathy have a different gene expression profile, when compared with age matched healthy newborn babies and that transcriptomic signatures at birth can identify the babies who develop adverse outcomes with high accuracy. These findings highlight that gene expression hold great potential as prognostic and treatment decision biomarker.

Audience Take Away:

- The burden of neonatal encephalopathy worldwide
- The pathophysiology of neonatal encephalopathy
- What gene expression is
- The use and development of gene expression as disease stratification biomarker

Biography:

Dr. Paolo Montaldo has been primarily focused on neuroprotection and magnetic resonance biomarkers in neonatal encephalopathy. Over the past two years, he has had in-depth training in various aspects of transcriptomics and bio-informatics and then went on to secure a prestigious doctoral fellowship from the Medical Research Council, UK. In his PhD work, he showed how gene expression signatures can be useful in precision medicine and how this could bring about a paradigm shift in neonatal encephalopathy neuro-protection research. Dr. Paolo Montaldo currently works at the interphase of neonatal neuroprotection, transcriptomics and related bio-informatics.

Precision medicine in neurodevelopmental disorders: Optimising outcomes for children and families through timely, accurate diagnosis and targeted treatment

Simone Ardern-Holmes

TY Nelson Department of Neurology and Neurosurgery, The Children's Hospital at Westmead
Faculty of Medicine and Health Sciences, The University of Sydney, NSW, Australia

Neurodevelopmental disorders including developmental delay, intellectual developmental disorders, and autism, with comorbidities such as epilepsy, occur frequently in children (3-5 percent). Careful phenotyping and individualized investigations are needed to ensure accurate diagnosis and early identification of acquired or genetic causes. Specific management is indicated in many cases, to optimise patient outcomes and prevent recurrence.

An approach to clinical assessment will be outlined, highlighting important features on examination, and neuroimaging. Resources to inform the diagnostic process will be presented, emphasizing the early identification of treatable causes of neurodevelopmental disorders, and suggested criteria for referral to sub-specialist neurologist, metabolic physician and clinical geneticist.

A comprehensive approach to management of the child and family is outlined, to improve outcomes and quality of life. Instructive case examples will be provided of single gene disorders for which specific targeted treatments are available, illustrating the potential to change the natural history of these conditions.

Audience Take Away:

- Overview of important acquired and genetic causes of neurodevelopmental disorders (recognising overlap between developmental delay, autistic spectrum disorder, epilepsy and other comorbidities).
- Approach to early diagnosis of treatable causes for neurodevelopmental disorders not to miss.
- Approach to comprehensive care of the patient and family with neurodevelopmental disorder, to optimize outcomes and quality of life.
- When to refer for neurology, metabolic physician and clinical geneticist input.
- Precision medicine: Case examples demonstrating effective personalized, disease-specific treatments, and future directions.

Biography:

Dr Simone Ardern-Holmes is a Paediatric Neurologist at The Children's Hospital at Westmead, with expertise in the diagnosis and treatment of developmental delay, epilepsy, neurocutaneous syndromes, and other neurogenetic disorders. She trained at The Children's Hospital Boston along with other Harvard Medical School affiliated centres, and has been awarded a PhD from The University of Sydney, based on extensive and original research on neurocutaneous disorders, novel treatment approaches, and impact on quality of life. Dr Ardern-Holmes participates in international research and education collaborations, and is an active mentor and teacher in professional ethics of medicine.

Hazards of neonatal transfusion

Dr Rohit Kumar

South Tees Hospitals NHS Foundation Trust, UK

Blood forms an important part of the therapeutic armamentarium of the neonatologist. Very small premature neonates are amongst the most common of all patient groups to receive extensive transfusions. The risks of blood transfusion in today's age of rigid blood banking laws, while infrequent, are not trivial. Therefore, as with any therapy used in the newborn, it is essential that one considers the risk- benefit ratio and strive to develop treatment strategies that will result in the best patient outcomes. In addition, the relatively immature immune status of the neonate predisposes them to Graft versus Host Disease (GVHD), in addition to other complications including transmission of infections, oxidant damage, allo-immunization and so on. Since neonatal physiology varies with the maturity, age, weight and the presence of morbidities, it is difficult to formulate one parameter to guide all transfusion decisions.

This presentation would address the following issues:

- What specific pre-transfusion processing is performed before transfusing blood products to neonates?
- What are the indications and potential complications associated with the use of various blood products?

Audience Take Away:

- Delineate the steps involved in blood donor screening process
- Discuss the current trends and practices of red blood cell and platelet transfusions in neonates
- Summarize the risks of neonatal transfusion therapy and specific methods to reduce risk, thus facilitate decision-making for neonatal transfusion

Biography:

Dr Rohit kumar is a Consultant Neonatologist with a special interest in infectious diseases and transfusion medicine. He is currently working at James Cook University Hospital in Middlesbrough.

Neonatal pain: Beliefs, skepticism, and scientific knowledge

Kosmas Sarafidis

Department of Neonatology, Aristotle University of Thessaloniki, Greece

During the last decades, a considerable improvement has been made in understanding the pathophysiology of neonatal pain and the long-term consequences of untreated pain in this age group, overcoming, thus, myths and beliefs of the past that have greatly influenced everyday clinical practice for years. Nevertheless, evidence shows that, still, there is a large variation in the management of neonatal pain across centers and countries. Fear of acute adverse effects and poor neurodevelopment in the long-term following the administration of analgesics-sedatives in neonates, difficulties in pain assessment, relative paucity of relevant pharmacological studies, and personal preferences are important contributors to the existing differences among neonatologists, worldwide. On the other hand, clinical data regarding neurological outcomes after exposure to drugs such as opioids are conflicting, so that the question of whether the specific drugs may promote the damage of preterm brain largely remains unanswered. Inadequate pain assessment in neonates most probably reflects difficulties and reliability of the existing scales in assessing pain and its types (acute procedural, postoperative and chronic pain) as well as “culture on neonatal pain” and organizational issues (e.g., understaffing, increased number of admissions, etc.). To eliminate drug exposure and significant side effects, several non-pharmacological modalities –environmental (measures to minimize bright light, loud noises or frequent handling) and behavioural (skin-to-skin care, sweet solutions)- are increasingly being used so that to reduce total amount of noxious stimuli. Overall, prevention and minimization of pain must be a high-priority goal during neonatal care, as early events like neonatal pain and stress may lead to epigenetic alternations affecting the infants’ developmental trajectory. Given, however, the aforementioned concerns, a tiered approach to sedation/analgesia seems most appropriate. Drugs should be used wisely when needed, while neonatal units should promote continuous education and protocol development on pain assessment and management.

Audience Take Away:

- This presentation will help the audience in understanding the pathophysiology of neonatal pain as well as short and long-term consequences of inadequate pain management in neonates. This is of utmost importance before any change in the “attitude on pain management” occurs, finally leading to better NICU policies and improved management of neonatal pain.
- Moreover, attendees will learn about concerns on brain development after exposure to sedatives-analgesics. This might help in a better choice and use of drugs.
- The audience will learn the significance but also difficulties in pain evaluation in neonates.
- The audience might implement specific information in everyday clinical practice improving, thus, neonatal care.
- This presentation might inspire new studies to effectively and safely improve management of neonatal pain.

Biography:

Kosmas Sarafidis is Associate Professor of Neonatology at the School of Medicine of the Aristotle University of Thessaloniki (AUTH) in Greece. Currently, he is responsible for Neonatal Intensive Care Unit at the 1st Department of Neonatology of the AUTH. He has extensive experience in educational activities of many groups (under- and postgraduate medical students, fellows in Pediatrics and Neonatology). Neonatal pain is one of his scientific interests during the last decade. He has published more than 50 articles in international peer-reviewed journals, while he has participated in various National and International congresses-seminars as chair and invited speaker.

Early intervention strategies in developmental and behavioral disorders

Dr. Somasundaram Aiyamperumal, MD, PGDDN

Co-Founder, Chief Mentor and Developmental Pediatrician, D'Soul Child Development Centre,
Consultant in Development Pediatrics, KanchiKamakoti Childs Trust Hospital, Chennai, Tamilnadu, India.

Developmental and behavioral problems are the emerging morbidity in childhood. Early social/emotional development and physical health provide the foundation upon which cognitive and language skills develop. Early childhood is considered a critical but often vulnerable period in a child's development where early identification and intervention can be crucial for improving children's developmental outcomes.

There is an urgent and substantial need to identify as early as possible those infants and toddlers in need of services to ensure that intervention is provided when the developing brain is most capable of change. Neural circuits, which create the foundation for learning, behavior and health, are most flexible or "plastic" (Neuroplasticity) during the first three years of life. Over time, they become increasingly difficult to change.

Early childhood intervention is the process of providing specialised support and services for infants and young children with developmental delays or disabilities, and their families, in order to promote development, well-being and community participation. It consists of identifying a baby who already has a handicapping condition or is at a potential risk for developing one, and then providing services to lessen the effects of that condition. The term encompasses a range of stimulation and training activities over and above the minimal care traditionally provided for all babies. Intervention is likely to be more effective and less expensive when it is provided earlier in life rather than later. The services can be Preventive, Curative, Supportive or Remedial.

It's not a drug, it's not a vaccine and it's not a device. It is a group of therapists working together, solving problems and enhancing capabilities. Let's strive hard to find the ability in their disability.

Audience Take Away:

- What is Early Intervention
- Early stimulation vs Early Intervention
- Who are the candidates for early intervention
- Why should you do early intervention
- When should you start Early Intervention
- Where can early intervention be given
- Who are all part of early intervention team?
- How to do early intervention
- My presentation will help pediatric practitioners understand the need for early intervention, identify candidates for early intervention and will be able to start an Early intervention center in their area to provide high quality developmentally supportive care.

Biography:

Dr. Somasundaram Aiyamperumal is a practicing pediatrician with 16 years of experience and also an expertise in Child developmental and Behavioral problems. I am currently the co-Founder, Chief mentor and Developmental Pediatrician of D'Soul Child Development Centre, Chennai, India. I have 8 years of experience in teaching pediatric postgraduates and presently have an affiliation with Kanchi Kamakoti CHILDS trust hospital as a Consultant in Developmental Pediatrics. I am in the editorial board of Pediatric Journals and have contributed articles to magazines and chapters to books. I have served in various capacities in the Indian Academy of Pediatrics [IAP], the only national academic body of Pediatricians of India with more than 29000 members. I am also a speaker in various National and state conferences in India and have prepared many modules for Pediatricians. I am currently a member of European Academy of Childhood Disability [EACD], The International Child Neurology Association [ICNA] and International Developmental Pediatrics Association [IDPA]

Maternal obesity and impact on the neonate

Rubia Khalak*, MD, Michael Horgan MD, Upender Munshi, MD

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Obesity has become an ever-present problem regardless of age, gender or socioeconomic background. An increase over the past two decades has also been noted in the pregnant population. More women are obese at their first prenatal visit and then subsequently gain more weight throughout the pregnancy than ever before. Maternal obesity can lead to problems not only in the mother but also with the process of labor and ensuing neonatal complications. The National Institute for Health definition of obesity has three levels: Level I: BMI 30-34.9 is associated with high risk of disease, Level II: BMI 35-39.9 is associated with very high risk, Level III: BMI 40 or greater is extremely high risk. The maternal complications include preeclampsia, gestational diabetes mellitus, thromboembolism and increased mortality. The labor complications include increased risk for assisted, instrumental delivery, hemorrhage and cesarean delivery.

The increased risk of cesarean section remained higher even when adjusted for potential confounders such as preeclampsia, diabetes and macrosomia. One of the most common neonatal problems associated with maternal obesity is macrosomia with a birthweight greater than 4 kilograms. Other newborn complications include congenital anomalies, stillbirth and hypoglycemia. What is known concerning maternal obesity and neonatal outcomes has improved in recent years; however, the effect of maternal obesity on an infant's brain and the severity of ischemic damage has not been well studied. Our published research has shown that there are increased risks of difficult delivery room course and respiratory complications to the near-term neonate and the already vulnerable premature infant population. In newly completed research, we have found that there is an increased incidence of hypoxic ischemic encephalopathy (HIE) in infants born to obese mothers.

Audience Take Away:

- Confirming previous observations, we found that obese mothers are more likely to have DM and/or hypertension both pre-pregnancy and gestationally
- We found that infants born to obese mothers are much more likely to be delivered by cesarean section, have larger birth weights and require assisted ventilation in the DR
- When the groups were evaluated for HIE after adjusting for type of delivery, pre or gestational DM, and pre or gestational HTN, infants of obese mothers received the diagnosis and management of HIE more frequently than infants of non-obese mothers, OR 1.96 (1.33-2.89), p=0.001.
- Infants of obese mothers are more likely to have a diagnosis of HIE treated with therapeutic hypothermia.
- Although it may not be feasible or necessary for all obese mothers to deliver at a regional center with an affiliated NICU, based on our study findings, delivery of infant of obese mother with subsequent low Apgars should heighten concern for HIE.

Biography:

Dr. Khalak received her MD from SUNY HSC in Syracuse, NY. She did her pediatric residency and neonatology fellowship at University of Rochester in Rochester, NY. While in fellowship, Dr. Khalak was awarded two NIH grants, one in molecular biology and an individual national research science award. Dr. Khalak is currently an Associate Professor in the Department of Pediatrics and Division of Neonatology at Albany Medical College. Dr. Khalak was selected as an active member for the Scientific Pediatric Society and abstract reviewer for SPR. She also serves as a journal reviewer for multiple scholarly journals including J of Pediatric Surgery and J of Perinatology. She has also served on several patient safety committees and palliative care committees. Dr. Khalak serves as the Associate Dean of Enrollment Management and Administration, heading the Admissions Department. Dr. Khalak also serves as an Advising Dean for the medical students.

Anemia and thrombocytopenia: Attention and care that the pediatrician must have during the service

Frederico Ribeiro Pires^{1*}, Emilian Holzhhausen Goncalves da Motta², Artur Figueiredo Delgado², Werther Brunow de Carvalho²

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Anemia and thrombocytopenia are common in the pediatrician's clinical routine. But are we prepared for the differential diagnoses and the serious risks that we can take with the wrong conduct?

Thrombotic microangiopathies encompass a set of pathologies that evolve with nonimmune hemolytic anemia and thrombocytopenia, but underdiagnosed in the pediatric age group. Will be reported the case of a child with a diagnosis of systemic lupus erythematosus (SLE), macrophagic activation syndrome (MAS) and thrombotic thrombocytopenic purpura (TTP), which evolved to death.

Due to the severity of thrombotic microangiopathies and their underdiagnosis, I propose a flowchart of ducts in the anemic and thrombocytopenic patients, with great care in platelet transfusion, to avoid the tragic outcome.

Audience Take Away:

- Critical look for patient with anemia and thrombocytopenia
- The dangers of platelet transfusion in these patients
- Differential diagnosis of thrombotic microangiopathies and appropriate management

Biography:

Dr Frederico Ribeiro Pires is a pediatric intensivist with a specialist degree from the Brazilian Society of Intensive Care Medicine. Assistant physician of the pediatric ICU of the Children's Hospital of Brasília and professor of pediatrics at the University of Brasília. In addition to his work, he reviews articles for some medical journals and has articles published in the area of thrombotic meningitis and microangiopathy. Currently, he does research with vancomycin and meropenem in pediatric intensive care.

Effectiveness of life skills training to enhance mental health status and wellbeing of children and adolescents

Jessy Mavarayil John^{1*}, Dr. Riju Sharma²

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Introduction: Childhood and adolescence are crucial periods for laying the foundations for healthy development and good mental health. An individual's mental health status and wellbeing crucially affect their path through life, and they are vitally important for the healthy functioning of families and society as a whole, together they affect the social cohesion, and prosperity of the Nation. Children and adolescents are one of the precious resources in every country, if they can be given the necessary life skills need to thrive, that may be able to meet the challenges of everyday life. Hence, World Health Organization has been promoted life skills education since 90s (WHO 1996). Early intervention and life skills training programs would be beneficial for reducing crime in children and young people, improving productivity, increase coping skills and resilience to stress and preserving mental health and well-being in older age (Cooper et al., 2009).

Aim: To study the effectiveness of life skills training to enhance mental health status and well being of Children and Adolescents.

Objectives: To study the mental health status and wellbeing, effectiveness of intervention and the status of respondents after intervention.

Research Methodology: A classical experimental research design with control group and random sampling method was used. The population consists of 720 adolescents (16 -19yrs of age group) both boys and girls from six higher secondary schools (3 Govt. and 3 Private schools: Girls, Boys and Coeducation) in Kerala, India. The population is divided into intervention group and control group with 360 respondents each.

Tools used for data collection: The standardized tools administered for the study were GHQ-28 and WEMWS-14. Socio-demographic details, family function assessment and general health condition were assessed using an interview schedule.

Statistical Analysis: Independent sample t-test was performed to compare the equality of baseline scores of various components of the mental health status and well being of the two groups. RMANOVA was performed to test whether there is any significant effect due to interventions in the scores.

Result: The effect of intervention tested by RMANOVA procedure over three timelines show that there was highly significant intervention effect between the scores of mental health status and wellbeing. The p value is less than 0.05, leading to the conclusion that there is significant effect in Mental Health Status and wellbeing due to intervention. i.e., intervention is effective.

Conclusion: Hundred percent of respondents in mental health status group and 99.1% of respondents in mental wellbeing group were benefitted from the intervention program. The scores of two questionnaires are negatively correlated at 0.01 level of significance, giving the desired result.

Audience Take Away:

- Explain how the audience will be able to use what they learn?

Presentation of this study will provide more information regarding the need for early intervention to promote mental health and wellbeing of children and adolescents. Intervention can boost their confidence, self-esteem, experience and skills which would help them to be more independent and prepare them for active participation in the society. Young people who have developed these skills are more likely to make positive contributions to society both at young age and as they grow into adulthood.

- How will this help the audience in their job

The audience will be left with a deeper conviction that continued interventions and life skill training would enhance the capability of the youngsters to contribute to positive social engagement and nation building. It would be enlightening for the practitioners as well as the lay audience.

- Is this research that other faculty could use to expand their research or teaching?

School based life skills training is a novel mental health promotional program for young people which will help them to reach greater heights in all aspects of life. Life skills education would definitely empower the young people to choose the appropriate values and behavior in their life, which are ingredients of mental health and wellbeing. Academicians would get another evidence-based study to establish this fact, while researchers would be attracted to explore more context specific studies which would help in identifying the nature and mode of suitable interventions.

- Does this provide a practical solution to a problem that could simplify or make a designer's job more efficient?

Definitely this will provide practical solution to the question whether repeated and periodic life skill training should be given to young people. Researcher conducted individual case studies and focus group discussions based on the need of the participants and noticed that, the module on life skills are very much effective for the holistic development of young people. The researcher also assessed whether there is any significant difference in the scores of mental health status and wellbeing due to the influence of different socio-demographic variables and assessed the status of respondents after the intervention program and noticed tremendous improvement in the intervention group.

- Will it improve the accuracy of a design, or provide new information to assist in a design problem? List all other benefits.

The result of the study indicates that, life skills training is needed for young people and should be included in their curriculum. This is the time to invest in strategic policies, partnerships and effective intervention programs that engage and equip young people to be productive and to realize their potential. Policy makers would be empowered to work in favour of promoting continued life skill training for the young people. Mentors and trainers of youngsters would be encouraged to follow up the youngsters with frequent interventions in the life of their mentees.

Biography:

Ms. Jessy Mavarayil John is currently a Research Scholar at Don Bosco University, Assam, India. She is a catholic nun belonging to the Religious Congregation of Medical Sisters of St. Joseph. She completed Post Graduation in Medical & Psychiatry Social Work from Loyola College Trivandrum, India and secured M. Phil Degree in Social Work from Loyola College Chennai. She has been working with Kusumagiri Mental Health and Behavioural Sciences at Cochin India, as the Coordinator of Community outreach activities and School Mental Health Program of the hospital. Her work focuses mainly on mental health and well being of young people.

National registry for children with cancer in Kuwait

Maha Jassim Bourusly*, Mona Bourhama, Nisreen Khalifa, Hubert Motti, Sahar Kaleefa, Muhammed Adil, Suad Alenzi, Medhat alshazli

Children Speciality Hospital NBK, Sabah Health District, Ministry of Health, Kuwait

The scope of this talk would be about registries of cancer and hematological diseases around the world and the impact on the improving the health system of countries. Registries in a developing country could be very challenging; however very rewarding to assess the services provided. We will share our experience in developing a registry of childhood cancer in Kuwait and the steps taken as well as obstacles faced during this journey. This study was conducted at the children specialty hospital at the National Bank of Kuwait (NBK) hospital, Sabah health district, which is the only center for cancer management in children in Kuwait. Since the establishment of the unit back in the seventies the patient's statistics was gathered by personal effort of the doctors of the unit and it was not official, and some of these data was gathered by Kuwait cancer control registry center which is basically adult service. There is an estimate of 120 new cases are received every year, and currently there are more than 800 children on regular follow up at NBK children hospital; receiving children with cancer from birth to 16 years. The objective of this study was to address the need to have a separate national registry for children with cancer, in order to follow the international statistics and improve the services provided at NBK children hospital. This study used a prospective/cross sectional / retrospective method.

This project started in May 12th 2016. A data sheet form which contained patient biography, investigations, clinical course, complications, and outcome of cancer in children was designed. The inclusion criteria were all children with cancer were included in this registry, and the exclusion criteria were children presented with benign diseases. Data was collected from the files of the patients with leukemia who received treatment in the NBK hospital since the year 2004 and for patients with oncology diseases since 2005. Data was analyzed using SPSS form for data analysis. This study was approved by the ethical committee of the ministry of health of Kuwait, and was sponsored by the Kuwait Foundation for the advancement of sciences. The total number of all patients from 2004 to 2017 was 1387: for children with oncology diseases were 850 retrieved 597, and children with leukemia were 537 retrieved 537. There were 593 Kuwaitis and 416 non Kuwaitis who came from at least 28 other nationalities. There were 588 males and 421 females. It is noted that second most common cancer after leukemia in this registry is lymphoma (14%). Most children presented at diagnosis and have not received any treatment yet (76%), or received partial treatment (11%). In our study 76.3 % of children are alive and are following at our centre, and we lost around 10%, and unfortunately 11% were lost to follow. The national registry for children with cancer project is a vital study for all researchers in the field. This study showed that our overall statistics are in keeping with the international statistics.

Audience Take Away:

- National registry is a platform for researchers.
- Registries are crucial for chronic or debilitating diseases to know the scope of services provided.
- Learn to utilized resources needed for registries.
- Learn to overcome obstacles especially in developing center in a developing country.
- Share results of our registry study and learn about basic statistics of childhood cancer in Kuwait and internationally.
- This lecture would motivate audience to learn to focus on gathering statistics each in their field, specifically when dealing with chronic diseases, to create a platform for future studies. These statistics are vital to see the disease at nationally and compare internationally.

Biography:

Dr Maha Jassim Bourusly is a pediatric consultant at the department of hematology and oncology at the NBK Children's specialty Hospital in Kuwait. Received her MD from Kuwait University in 1990, and started her career as a pediatrician at Al-Amiri hospital Kuwait. She received DCH (Dublin) 1994, Kuwait Board in Pediatrics (PGTP) 2002, and MRCPCH (UK) 2003. Dr Maha Joined the department of hematology in 2003. She is the head of Thalassaemia league and Pediatric league, Kuwait Medical Association, and a member of IWL society, an initiative to teach children at hospitals.

A comparison between video-assisted transumbilical appendectomy and laparoscopic or open appendectomy in children.

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Aim: Video-assisted transumbilical appendectomy (VATA) is a combination of laparoscopic appendectomy (LA) and open appendectomy (OA) which has the potential advantages of both techniques. In this study, we report our recent experience with VATA and compare it to our experience with OA and LA.

Methods: The charts of all the children who underwent VATA between March 2006 and July 2008 in the Department of Pediatric Surgery at Haemek Medical Center in Afula, Israel were retrospectively reviewed and compared to those who underwent OA or LA between July 2002 and October 2003. Children who presented with a preoperative diagnosis of acute appendicitis and children who were electively admitted for an interval appendectomy were included in the study.

One 12-mm trocar was inserted transumbilically. An operating laparoscope was used to mobilize the appendix, which was delivered through the umbilicus, and a standard extracorporeal appendectomy was performed. The results of VATA were compared to our results with OA and LA which were published in 2007.

Results: Of 129 children who underwent appendectomy, 58 had VATA, 52 OA and 19 LA. Of the 58 children who had VATA, 42 were performed for acute appendicitis and 16 as an interval appendectomy after conservative treatment of complicated appendicitis. The operating time was significantly longer for LA than for VATA and OA. The length of stay (LOS) was significantly shorter after VATA or LA than after OA. A lower percentage of children who underwent VATA had morphine needs (MO) than after LA and OA and children after VATA had statistically significantly fewer days NPO. There were no deaths or severe complications during or after any of the operations and there were no statistically significant differences in complications amongst the groups.

Conclusions: Video-assisted transumbilical appendectomy combines the advantages of both OA and LA. The use of one trocar along with an extracorporeal appendectomy makes VATA less invasive, easier, faster and cheaper than LA.

Keywords: Video-assisted, Laparoscopy, Appendectomy, Children.

Biography:

Dani Yardeni since 2016 is acting as Consultant Pediatric Surgeon, Pediatric Surgery Dept. Hadassah Medical Center, Jerusalem, Israel.

Sepsis in pediatrics: Current concepts of terminology and management

Otilia –Elena Frasinariu

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Sepsis is one of the leading causes of mortality among children worldwide. Although the diagnosis and management of sepsis in infants and children is largely influenced by studies done in adults, there are important considerations relevant for pediatrics and we wanted to highlight pediatric-specific issues related to the definition of sepsis and its epidemiology and management.

The definition of pediatric sepsis is currently in a state of evolution. For the past two decades, sepsis has been defined as “systemic inflammatory response syndrome (SIRS) caused by infection” both for adults and children.

International pediatric sepsis consensus conference in 2015 revised the adult SIRS criteria for children. New sepsis criteria were advocated as “Sepsis-3” in 2017, which redefined “as life-threatening organ dysfunction caused by a dysregulated host response to infection”. Unfortunately, this change in the definition of sepsis is applied to adult population at this moment, consensus definition in children are not well established. The epidemiology of pediatric sepsis varies from study to study probably because of their different era, population, and diagnostic criteria. Sepsis is often diagnosed too late, because the clinical symptoms and laboratory signs that are currently used for the diagnosis of sepsis, like raised temperature, increased pulse or breathing rate, or white blood cell count are unspecific. In children, the signs and symptoms may be subtle and deterioration rapid. Early sepsis treatment is cost effective, reducing hospital and Critical Care bed days for patients.

The current management of pediatric sepsis is largely based on adaptations from adult sepsis treatment. New knowledge was added regarding the hemodynamic management and the timely use of antimicrobials. The early administration of antibiotics and hemodynamic stabilization with fluid resuscitation and inotropic/vasopressor support are like both wheels of a vehicle for the initial management of sepsis. The management of pediatric sepsis must be tailored to the child’s age and immune capacity, and to the site, severity, and source of the infection. The management of pediatric sepsis would be expected to make further progress.

Audience Take Away:

- History of the sepsis definition
- Highlights of the pediatric-specific issues related to the epidemiology and management
- Highlights the importance for clinicians to be aware of infection-related syndromes that primarily affect children
- Set goals for prospective studies to define new sepsis criteria in children

Biography:

Dr. Frasinariu Otilia is an Assistant Professor in Pediatrics in University of Medicine and Pharmacy Grigore T. Popa Iasi, Romania and currently serves as a pediatrician in the Saint Mary Emergency Children Hospital in Iasi Romania. She worked in a pediatric intensive care unit and toxicology in the last 4 years. In addition, she is involved in educational and research projects in the field of pediatric obesity.

Creation and development of an out of hours child and adolescent mental health emergency service

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Having 25% of the total population aged under 18y old, Ireland struggles to provide appropriate Child and Adolescent Mental Health Services (CAMHS); this is directly connected to the lack of CAMHS consultants to lead these services. Accessing the existing CAMHS, especially in emergency, is particularly difficult as the waiting lists are ever growing, and therefore delaying the possibility of an early first appointment.

To palliate this, in Wexford and Waterford, we decided to be creative and to develop a new type of service: an out-of-hours Emergency Mental Health Service for young people, which provide assessments and interventions for under 18y old patients with Mental Health issues presenting in Emergency Department (ED) and/or hospitalised on a Ward. This new service functions with extremely limited resources (one consultant Psychiatrist and one Psychiatrist in training) and operates between 3 sites.

Results: A total of 675 interventions were delivered by the consultant responsible for that new Service over a period of 7 months (between February and August 2018). 59% of these interventions were made by phone while 41% required a face to face consultation.

Conclusion & Significance: Following this study, not only has this new service been maintained but it will be developed and might also serve as a model for the other regions of Ireland which might want to develop a similar service.

Audience Take Away:

- How we put in place a new service for young people with Mental Health Issues with very little resources.
- How having a psychiatrist within a pediatric team changes the way to practice.
- Which interventions were delivered and which impact they had on the existing services.
- Which young people do present out of hours with Mental Health Issues and which challenges they present with.
- How to improve this new service in a very practical way (education, premises, safety, etc.)

Biography:

Anne-Frederique Naviaux is a consultant Psychiatrist and Child Psychiatrist, who finished her Master in Psychiatry in 2004 (Université Catholique de Louvain, Belgium). She worked in France as a 'praticien hospitalier' in Child Psychiatry and for the World Health Organization (WHO), before joining the research department in Trinity College (Dublin, Ireland) in 2011. She has been a lecturer in France (IFSI) since 2004 but also joined the Royal College of Surgeons of Ireland in 2012.

She currently works for the Health Service Executive in Ireland as Head of Service in Summerhill Adult Mental Health Centre (Wexford) and as Clinical Lead for Liaison Psychiatry in Wexford General Hospital (WGH). Since 2016, she has been developing in collaboration with the Paediatric Team in WGH, an out of hours emergency service for young people with Mental Health Issues.

Rare diseases are not orphans in Israel

Dr Hadar Yardeni

Head of the department for child development and rehabilitation, Ministry of Health office, Israel

The big change in Israel accrued in 1995 with the 'National health insurance law'. Since then every citizen is initialed to be insured in one of the 4 health insurance companies.

The law defines our basket that includes over 3,000 therapeutics. The cost is about 11 billion Euros.

We update our Basket every year and everybody can apply.

We add new orphan drugs to our basket almost every year. For example was approved in 2007 the drug Meyozyme for 21 patients with Pompe. The cost was almost 150 thousand Euros for each of them. We don't have a price limit for a drug per person, as our law demand 'mutual assistance'.

In 2014 I had the honor to lead a committee set by our minister, for rare diseases in Israel.

We discussed many aspects of the subject, including definition and wether we need a special law for rare diseases. We agreed about the need of a register and the minister of health office support and pay for it.

We found that there is a big problem with genetics examinations; also it is in our basket since 1995. We found that because of the high price of the new exams the health insurance companies are not very happy to provide them. We can't pay the insurance companies for what we already payed and included in our Basket. As we understand that diagnosis is the basic for everything, the government decided to give an extra 9.5 million Euros a year for this purpose and we pay directly to the laboratories.

We have some specialized medical services especially for rare and unique diseases. We found that, much less patients then expected come to these clinics. The peripheral areas where we know we have more patients is missing. We decided to finance 3 new clinics for rare diseases: 2 in the peripheral areas of the country and one in the center. Those clinics are not for one disease but for all the patients. They are multidisciplinary clinics with Drs. Nurses, therapeutic teams, social workers and genetic consultants.

The health insurance companies must pay and send there every patient that known to have or has a question on having a rare disease, and wants to be diagnosed or treated there.

I want to end with an example from our clinic in the north.

The frequency of rare diseases in Israel is slightly higher than the frequency in Western countries because of the high incidence here of marriages between cousins in some of the populations. We have more than 1 million Muslim leaving at the north of the country. Many of them are marry in the family. A new recessive mutation will lead to many affected individuals families and even villages.

We send our teams to the villages and they talk to the people. If they agree and want to be valuated we get an informed concern from them, they get the genetics consultation and tests with no charge and the government pays for it all.

Audience Take Away:

- Give the people with rear disease a stage.
- What our country does towards rear diseases patients and family.
- How to make a tailor made programs according to the needs of the population.

Biography:

Hadar Yardeni since 2013 is acting as the Head of the department of child developmental and rehabilitation at Ministry of health office, Jerusalem, Israel

DAY 2

KEYNOTE FORUM

2ND EDITION OF EURO-GLOBAL CONFERENCE ON

PEDIATRICS AND NEONATOLOGY

SEPTEMBER

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LONDON, UK

EPN-2019





Biography

Janet Mattsson has specifically devoted her research to complex care situations and pedagogical encounters such as how she learned and what they learned in clinical practice from a multi-modal perspective, as well as the interaction school, clinic, student. Her field is within the pediatric intensive care context. Her research is interdisciplinary between nursing and medical education. Theoretically, she is anchored in pedagogical theories and nursing theories, especially Patricia Benner's thoughts on holistic nursing have been of great importance to her. Methodologically, her research primarily derives from a qualitative approach with phenomenology and interpretative phenomenology as the foundation. Data collection takes place through interviews, participatory observations and action research in various care-related contexts.

Digitalization in a technological environment, a pediatric operating theater

Janet Mattsson RN, PhD.

The Swedish Red Cross University College, Sweden

We all know that the digitalization is here to stay, so also in the children's operating theater. We also know that effective teamwork is crucial for safe surgery. Changes in demographic trends and new surgical and technological innovations require close collaboration with other disciplines for a number of reasons (Dekker, 2014). Despite the advances in technology, making healthcare safer depends, not on minimizing the human contribution but on understanding how people, look ahead, overcome hazards and, in effect, create safety (Vincent, 2011). This is very true in a high technological environment that has become utterly specialized and digitalized during the last decade. As the technical devices becomes more and more complex we require another approach for interprofessional collaboration in the operating theater to keep the child safe during the operation. Especially a breakdown in communication, poor teamwork, lack of leadership and poor decision making by individuals and teams have all been shown to be major contributors to adverse events (O'Dea et al., 2014). In the operating theater it is the operating nurse who has the responsibility for the caring situation. She is observing; following in detail the child's caring needs and providing relevant and sufficient care, while surgeons provide expert medical support for monitoring the course of the operation. In a critical situation, where technology fails or the patient status changes in an unexpected way, surgeons immediately start to search for medical or technological problems while operating nurses immediately direct his or her concentration on the child. Accurately according to their training and competencies, but at the same time, they interfere with the same patient and in the same situation. As they are sharing the situation it can be assumed that both their interaction and communication become a vital factor that influences the outcome of critical situations and the patient's wellness. In such a situation doubtful concepts and hints can be misinterpreted (Eddy, Jordan, & Stephenson, 2016). With this in mind, the caring context, as well as the system in which caring, and technology interact, become an essential aspect for continuing training in teamwork in an authentic context to enhance patient safety.

In acute situations verbal communication is vital for optimizing teamwork (Brindley & Reynolds, 2011). However, the difficulties in communication may be summarized in the phrase "meant is not said, said is not heard, heard is not understood, understood is not done" (Rall & Gaba, 2005, s. 3053). Verbal communication can be affected by stress and uncertainty that can lead to a tendency not to express what is thought. In communication, the words spoken and how they are understood by others change depending on stress, workload, culture, experience and the profession they involved in the event, which can lead to different assumptions and unwanted decisions. Another risk in acute situations is to be discontinued, which increases the risk of losing focus on the current situation (Brindley & Reynolds, 2011). We also know that teamwork is influenced by culture and expectations and that teamwork training gives better results. Where effective communication

is one important part of team work (Schmutz & Manser, 2013; Shekelle, et al., 2013). Various experiences affect how we work in teams, by providing training opportunities, every employee can develop. We also know that successful teamwork is based on respect and trust between its members. Everyone in the team should express their views in the group, which can be developed through collaboration and practice (Eddy, Jordan, & Stephenson, 2016). In order to be a team, we also need to train as a team, talk as team in an authentic context with authentic technological devices surrounding us. Otherwise there is a risk that we in a critical phase use a more cautious language based on an unwillingness to be seen as a rude, and unwillingly become a patient safety risk. In contradiction with the knowledge that communication in a stressful situation mean to be specific, restrict the information to what is necessary, express phenomena clearly, ask for a receipt, i.e. closed loop communication which confirms that your colleague was susceptible and understood the information correctly.



Biography

Dr. Karen Smith is the chief of the Division of Hospitalist Medicine at Children's National Health System in Washington, DC. She began her career as an army nurse before becoming a hospital based pediatrician. Her experience working with children and adults with complex medical needs led to her position as the Chief Medical Officer at The HSC Pediatric Center, a pediatric rehabilitation hospital, in Washington, DC. During this time she served as the chair for the District of Columbia Pediatric Palliative Care Collaborative and the District of Columbia Children with Special Healthcare Needs Advisory Board.

Partnering with children with medical complexity and their families to improve health outcomes and reduce cost

Karen Smith, MD, MEd

Division of Hospitalist Medicine, Children's National Health System, Washington, DC, USA

In the US and Canada, children with medical complexity (CMC) comprise 1-3% of all children, but account for up to a third of child health expenditures^{1,2}. Care for this vulnerable population is a significant cost to the healthcare system and individual families. However, most research has been done to manage these patients after they become complex rather than identifying children at risk and assisting with informed decision making early in the child's healthcare journey. Often parents are often bombarded with multiple lifesaving decisions in the course of their child's illness with minimal preparation, education, or long term planning; only to be "left" at the end when no cure or correction is found. Continued medical advances will only add to these numbers. Healthcare must move from a short term, reactive approach to a proactive partnership for the care of CSHCN. The keys to successful partnership include early identification of children with complexity, understanding of the parent/child goals of care, discussion of both short and long term outcomes of medical decisions, and flexibility of the medical team to modify care options to meet the needs of the family.

¹Cohen E, et al. Pediatrics 2012; 130(6)

²Berry J, et al. JAMA 2011; 305(7)

Audience Take Away:

- Describe the impact of children with complex medical conditions on the healthcare system.
- Recognize the implications of medical advances and research on children with complex conditions.
- Understand how early partnership with families can impact long term decisions.
- Explore strategies to balance patient/family goals of care with the needs of the healthcare system.



Biography

Dr David Hutchon, a fellow of the Royal College of Obstetricians and Gynaecologists, has 30 years experience as a consultant obstetrician in the UK. For the past 15 years he has been researching and teaching about the harm of early cord clamping, organizing conferences on the subject, publishing over 40 papers, speaking at neonatology meetings and ran an international workshop in Edinburgh on motherside neonatal resuscitation with an intact cord. He recently co-authored the chapter on cord clamping in the second edition of Golden Hours, Care of the Very Low Birth Weight Neonate.

Avoiding early cord clamping at all births

David J R Hutchon

Emeritus Consultant, Memorial Hospital, Darlington, England

Avoiding the harm of early cord clamping at birth is now recommended internationally. This recommendation is currently limited to neonates not requiring resuscitation at birth. These are the same babies that are most harmed by early clamping. The problem arises because the traditional resuscitation trolley is a few yards away from the mother and cord clamping is required to move the neonate over. There is also a perception that there is insufficient space for both the obstetric team and the neonatal team, but experience shows this is not the case. A development tool will be presented which will allow every maternity unit to provide motherside resuscitation with an intact cord at all births.

Audience Take Away:

- The development, procedures, equipment and training needed will be presented. An important element is understanding and agreement by the whole team that early cord clamping must be avoided.
- Avoiding early cord clamping in all neonates will prevent the hypovolaemia caused by clamping, and will lead to better outcomes and less need for admission to special care for the neonate, and reduced mortality in very preterm neonates neonatal procedures. This is a practical and simple redesign of neonatal care at the moment of birth which requires a customized approach, specific for different unit geography and different modes of birth. Fewer neonatal deaths and improved neurological development will have both economic and humanitarian benefits.

SPEAKERS

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Medically unexplained symptoms in adolescence: A challenge for the future

Sandra Trapani, MD, PhD

Department of Health Sciences, Meyer Childrens' University Hospital, Viale Pieraccini, 24, 50139, Florence, Italy

Medically unexplained symptoms (MUS) are a rising entity particularly among adolescents that might be highly impairing. In the past, many terms such as psychosomatic symptoms, somatisation, functional disorders, somatoform disease have been used to define a heterogeneous group of physical symptoms without any organic underlying disease, but somehow related to emotional or psychological aspects of the patients' life. Recently, the term MUS has been preferred as it captures the full range of conditions characterized by persistent physical symptoms that cannot yet be explained by any medical illness or injury. In the last years, there has been an increasing interest about MUS, which represent a significant disorder among adolescents, particularly in females. At present, MUS in adolescents is a great challenge for paediatricians and primary care physicians, but since its prevalence is increasing, it will become even more relevant in the next years. Necessarily, adolescents with unexplained physical symptoms and their families seek out medical assistance, through the general paediatrician, disease specialists or the emergency department. However, medical assistance itself, if not adequate or delayed, can maintain or even worsen the symptoms in an escalating vicious circle.

The result is often cyclic disability, frustration and missed opportunities to collaborate to enhance the patient functionality. On the other hand, many paediatricians have inadequate knowledge of MUS and its approach, evaluation and management. Thus, my report will focus on MUS and specifically on epidemiological and on its variable clinical presentation. I will also discuss the possible risk factors for MUS especially focusing on adolescent's personality and emotional disorders, cognitive and learning difficulties, previous adverse life or traumatic events, family medical or psychiatric history and on the school and peer group environment. Furthermore, the optimal evaluation strategy, which requires a comprehensive multidisciplinary approach, including medical and psychosocial assessment, will be extensively discussed. Such integrate way to manage adolescents with MUS should limit the high, often disproportionate, amounts of medical interventions required, such as numerous ER visits or hospitalizations, and unnecessary investigations. Last but not least, I will outline the successful management strategy for MUS. Primarily, engagement of families and patients is crucial; psychotherapy and physiotherapy are also winning weapons, whether associated with a good alliance between patient, family and paediatrician. Frequently, the appropriate intervention should also include an early psychiatric referral. In fact, a strict collaboration between paediatricians and psychiatrists may promote prompt confirmation of the diagnosis, but also timely treatment could improve the adolescent's quality life, preventing the social and personal negative consequences. By way of example, I will describe few cases with different clinical presenting features recently admitted to our hospital, providing the details of their diagnostic approach, the multidisciplinary management and outcome.

Audience Take Away:

- The epidemiological data and the clinical presentation of MUS
- The possible risk factors for MUS
- The optimal diagnostic approach of MUS in adolescence
- I will propose and discuss the evaluation strategy (requiring a comprehensive multidisciplinary approach, including medical and psychosocial assessment). This step-wise approach proposed could give a practical solution for both pediatricians and primary physicians taking care of adolescents.

Biography:

Dr. Sandra Trapani is a clinical active Pediatrician and assistant professor of Pediatrics with long term experience in general pediatric Medicine. She currently serves as the Head of the Pediatric Ward of the Meyer University Children's Hospital in Florence, Italy. The Meyer is a tertiary care regional and supra-regional. Referral Center. In addition to clinical pediatric practice has been involved in different research activities, mainly in Pediatric Rheumatology

Parents existential experiences when having a premature infant due to mother's preeclampsia

Inger Emilie Vaerland

Department of Paediatrics, Stavanger University Hospital, Stavanger, Norway

Aim: To deepen and expand the understanding of the parents' experience of having a premature infant due to mother's preeclampsia.

Background: Family centred care is a key element in the neonatal intensive care unit (NICU). The parents are supposed to be together with the infant as much as possible. Anyway, some parents experience that mother's severe illness and the infant's prematurity complicate the first period as parents.

Methodology: Two studies using reflective lifeworld research with a phenomenological, descriptive design were performed. Nine mothers and six fathers were interviewed. The context was the time from delivery and approximately until the infant's discharge from the NICU. The findings concerning mothers' and fathers' experiences were presented as an essential structure of meaning; its characteristics. This is a structure of essential meanings that explicates the phenomenon of interest. Reflective lifeworld research made it possible to abstract the finding further and do a theoretical investigation. The two essences were examined and alternately regarded as fore- and background. This was not a reanalysis, rather a fusion and abstraction of previous findings.

Theoretical investigation: The findings were examined using "limit situation" outlined by the German philosopher Karl Jasper (1883 – 1969). Human beings are always in situations. It may be possible to change the situation, but some situations are inescapable. Limit situations, from which we cannot escape or change, are the experiences of death, suffering, fighting, randomness, regret and guilt. They go with existence itself. When we experience death and suffering as a limit situation, we realize these as a possibility for someone or ourselves close to us. We understand that our time on earth is limited.

Findings: The experience of mother's preeclampsia and the premature birth did that the parents found themselves in a situation they could not escape. They could not act or alter their situation. Their pregnancies, which they had anticipated would be normal, put them in an unexpected and chaotic situation. They had to give birth, even though the infant was premature. The fathers were confronted with a reality where both mother and / or the infant were dramatically ill. Initially, the parents were not able to act within the situation, change it or escape from it. Later when mother and / or infant stabilized and recovered, the parents could more or less act within the situation. Anyway, they had to act within the context of the NICU.

Conclusion: The severe illness of the mother and infant and the experience of suffering and facing the possibility of death was accompanied by the contrasting feeling of joy at being pregnant and giving birth to an infant. The informants were in a situation in which they were about to take on a larger project in life – becoming parents – and the meaning the parents derived related to the infant and to the partner.

Audience Take Away:

- The study highlights the experiences of a vulnerable group of parents in the NICU. Existential suffering can be an experience when becoming parents.
- The study reveals that family centred care must be individualized according to the family's experience.
- The study shows the complexity of care given in the NICU; the parents have live through their existential experiences and they must be supported according to their needs.
- Theoretical or philosophical investigations of findings can deepen and expand the understanding of a phenomenon.

Biography:

Inger Emilie Vaerland is an intensive care nurse, PhD. She is working in the Neonatal Intensive Care Unit, Stavanger University Hospital, Norway. She has been working mainly with qualitative research, especially descriptive phenomenological research. She is affiliated to the Research group for nursing and health sciences, Stavanger University Hospital and Professional relations, University in Stavanger.

Nutritional status of babies who develop bronchopulmonary dysplasia: How can we do better

I Premadeva*, M Lasokova, A Carmichael, S Somisetty, C Chetcuti-Ganado

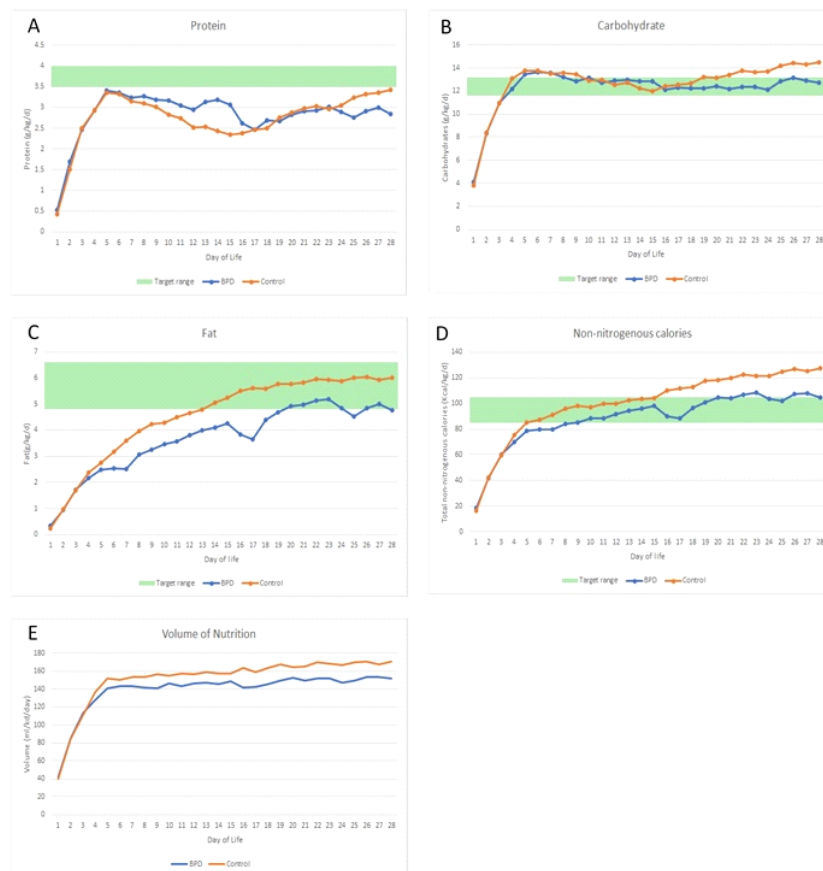
Neonatal Department, Luton and Dunstable University Hospital, Luton, Bedfordshire, UK

Abstract: Background: Lung injury during fetal development has poor potential for recovery, making very preterm infants vulnerable to bronchopulmonary dysplasia (BPD). Undernutrition in their first few weeks of life impairs the canalicular-saccular stage of lung development and alters developmental programming through epigenetic modifications. The accumulation of calorie deficit is most prominent in the very low (VLBW) and extremely low birth weight (ELBW) babies and further perpetuates lung injury. The ESPGHAN recommendations provide guidance as to the target ranges of nutritional intake for optimal growth in preterm babies. There is no evidence for whether reaching these targets prevents BPD development.

Method: Retrospective data was collected on babies born at a tertiary centre between 2014 and 2016 with a birthweight of less than 1.5Kg. Babies were excluded if they were transferred out or died before day 28 of life. The babies with a discharge diagnosis of BPD, defined as oxygen requirement or respiratory support at 36 weeks corrected gestation, were compared to those who did not. The ESPGHAN recommendations were used as the target range. We developed a nutritional calculator and the daily intake of fat, protein, carbohydrate and non-nitrogenous calories were obtained. The weight gain at day 28 was also compared between the two groups. Each baby's background risk factors for developing BPD was collected as a surrogate marker of additional stresses that may increase calorie requirements.

Results: A total of 28 babies were included in the analysis with n=14 in each group. The mean gestation and birth weight in the BPD and control groups were 27+4 and 1017g and 28+6 and 1018g respectively. Babies in both groups received similar protein and carbohydrate calories in the first 28 days. The protein intake for both groups was below the recommended range throughout the study period. A consistent lower intake of fat was noted in the BPD group which contributed to the overall lower non-nitrogenous calorie intake in this group. Higher rates of sepsis, blood transfusions, PDA requiring treatment, chorioamnionitis and longer days on mechanical ventilation were observed in the BPD group. Both groups had the same mean weight gain on day 28 of life. The control group received a higher volume of feed over the 28 days, maximally reaching 170.7ml/kg/day, versus 153.3ml/kg/day in the BPD group.

Conclusion: Optimisation of early postnatal nutrition as a strategy for reducing BPD rates in VLBW and ELBW babies, should take into consideration factors which increase metabolic demand. A lower fat intake creates a cumulative calorie deficit which is likely to contribute to lung injury. Weight gain is not a reliable marker of adequate nutritional intake. We recommend routine monitoring of fat, protein and carbohydrate intake as part of intensive care.



This figure shows the average daily intake of each component of nutrition in the control and BPD groups. A: Protein intake over 28 days B: Carbohydrate intake over 28 days C: Fat intake over 28 days D: Non-nitrogenous calorie intake over 28 days E Volume of feed consumed each day

Audience Take Away:

- This presentation will explain the findings from the audit carried out by our department into the nutrition of extremely low birth weight babies in relation to chronic lung disease development
- They will see that be are not meeting the targets set by ESPGHAN for protein intake and there is a marked difference in the fat intake of those babies that develop CLD and those who do not
- We will explain how these results have changed our practice and the new techniques that we have implemented to improve nutrition in these babies.

Biography:

Dr Irnthu Premadeva graduated from Southampton Medical School in 2013 and completed her foundation training in South Thames Deanery. She has entered her 5th year of Paediatric training in the East of England Deanery. She has a keen interest in Neonatology and has undertaken a number of projects looking at Chronic lung disease in particular.

Neurohabilitation, a procedure to decrease neurologic and cognitive sequelae in newborns with perinatal brain injury

Thalía Harmony*, Jesús Barrera-Reséndiz, María Elena Juárez Colín, Consuelo Pedraza-Aguilar, Cristina Carrillo-Prado, Manuel Hinojosa-Rodríguez

Unidad de Investigación en Neurodesarrollo, Departamento de Neurobiología Conductual y Cognitiva, Instituto de Neurobiología, Universidad Nacional Autónoma de México Campus Juriquilla, Querétaro, México

Neurohabilitation is a therapeutic treatment procedure described by Ferenc Katona, that is characterized by the “elementary neuromotor patterns”. These early integrated complex movements are chains of processes in which the neck, trunk and extremities perform complex and continual movements in certain repetitive patterns. These movements are controlled by the developing subcortical structures and can be activated by determined positions of the head and the body that triggers the activation of the vestibular nuclei and their projections to the spinal cord, the reticular formation, thalamus, cerebellum, basal ganglia and motor cortex. A therapeutic program consists of training of a series of neuromotor patterns each day for a certain time. The generation of these movements repeated several times produce brain engrams that improve motor development. A sample of 282 infants with perinatal brain injury and with different weeks of gestation were studied.

All infants had several prenatal and perinatal risk factors for brain damage. In all cases MRI was acquired at the beginning of treatment and 85% of the patients showed white and gray matter injury. Psychomotor development was evaluated with Bayley II tests up to 3 years old and WIPPSI and WISC were used according to the age of the child. Abnormal outcomes according gestational age were observed in 17% of extreme preterm infants, 18 % of very preterm infants, 11% of moderate preterm infants, 16% of late preterm infants and 5% of term infants. These results led us to the conclusion that the application of this therapy to infants of two to three months of age during a period of 36 months has been shown to be very beneficial. Acknowledgements: This work was partially supported by Project 4971 of CONACyT and IN200917 of PAPIIT DGAPA UNAM. Authors want to express their gratitude to engineers Héctor Belmont-Tamayo, Paulina Alvarez García, Saulo Hernández Sánchez and Carlos Sair Flores-Bautista, PhD Yuria Cruz-Alanis, PhD ME Mónica Carlier, PhD Lourdes Cubero-Rego, Nurse Alejandra Arenas Tecuapetla, psychologist Lourdes Lara Ayala, Ms Elsa Olivia Ruiz Martínez and Ms Teresa Alvarez Vázquez for their contribution to this work.

Audience Take Away:

- The audience will learn that with the methodology of neurohabilitation described, if it is used early after the infant born, motor and cognitive sequelae that are produced by perinatal brain injury may be decreased.
- References will be useful to those participants that are interested in applying the procedure in their own institutions.

Biography:

Dr. Thalía Harmony is a researcher that created a multidisciplinary laboratory for the development of new procedures for the early diagnosis and treatment of infants with brain perinatal injury at the National Autonomous University in Mexico. She is specialized in neurophysiology and her area of expertise is psychophysiology applying quantitative EEG and Event Related Potentials. She has published several books and more than 100 articles in international journals.

Dormant viruses activate during spaceflight – NASA investigates

Satish Mehta, Ph.D.

Johnson Space Center, NASA Houston TX USA

NASA astronauts endure weeks or even months exposed to microgravity and cosmic radiation besides extreme G forces of take-off and re-entry. Stressors like social separation, confinement and an altered sleep-wake cycle compound this physical challenge. During spaceflight there is a rise in secretion of stress hormones like cortisol and adrenaline, which are known to suppress the immune system. In keeping with this, astronaut's immune cells become less effective during spaceflight and sometimes for up to 60 days after. In the midst of this stress-induced amnesty on viral killing, dormant viruses reactivate and resurface. To study the physiological impact of spaceflight, we analyze saliva, blood and urine samples collected from astronauts before, during and after spaceflight.

Herpes viral reactivation is evident through the shedding of viral DNA in the body fluids of astronauts, and the viral load only increases with more time in space. Herpes viruses reactivate in more than half of crew aboard Space Shuttle and International Space Station missions. While only a small proportion develop symptoms, virus reactivation rates increase with spaceflight duration and could present a significant health risk on missions to Mars and beyond.

Our spaceflight-developed technologies for saliva collection/rapid viral detection have been extended to include clinical applications including zoster patients, chicken pox, post herpetic neuralgia (PHN), multiple sclerosis, and various neurological disorders. These protocols are employed in various clinics and hospitals including the CDC and Colombia University in New York, as well as overseas in Switzerland (Ricklin et al 2013) and Israel (Pollack et al 2015). In fact, we at NASA, developed a rapid and sensitive virus detection method that can detect virus in saliva samples from asymptomatic patients with neurologic and other VZV related disease before even the rash develops (Mehta et al 2013).

Audience Take Away:

- What are latent herpes viruses and why NASA is interested in them?
- Effect of spaceflight on latent herpes virus reactivation and its interaction with the immune system and stress associated with the spaceflight.
- Clinical application of NASA developed technologies to the terrestrial settings in the diagnosis of viral diseases.

Biography:

Dr. Satish Mehta has been working as a senior Scientist in the Biomedical Research and Environmental Sciences at Johnson Space Center, NASA for over 28 years. His major responsibilities are both operational and research activities for the health, safety, and optimum performance of astronauts. Published more than 60 peer-reviewed publications and over 200 presentations at national and international scientific meetings. NASA has recognized him with many awards including Medal for Exceptional Scientific Achievement and the Silver Snoopy Award. Recently public media like CNN, FOX news, BBC, India Today, German media and others, covered his viral reactivation research work with astronauts.

Experience of screening, diagnostics and treatment congenital CMV

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¹ Pirogov Russian National Research Medical University, Moscow, Russia

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Background: Human cytomegalovirus (CMV) is the most common cause of viral infection acquired in utero. Newborns can be symptomatic or asymptomatic at birth. The most frequent clinical signs are hepatosplenomegaly, severe thrombocytopenia, enterocolitis, intestinal bleeding, neurological abnormalities: severe encephaloclastic injury, intracerebral calcifications (striatal angiopathy), cystic periventricular leukomalacia, sensorineural hearing loss.

Materials/methods: In our department, Neonatal Department of Speranskiy Children Hospital, during the period from the beginning of 2015 to the end of 2017 we screened for CMV about two thousands infants under 3 months. We used quantitative polymerase chain reaction diagnostics to reveal cytomegalovirus in blood samples as a screening method. It helped to identify the asymptomatic patients who needed a treatment due to the high viral load. Blood biochemistry and complete blood count were performed to check for side effects and viral activity, as well as acoustic tests to assess the patient's hearing. Brain ultrasound and MRI were performed to estimate brain damage.

Results: During three years we observed 91 CMV positive infants under 3 months old (including 38 under 1 month); 28 of them were preterm. Eight newborns had severe congenital CMV infection with hepatosplenomegaly (all 8 babies), severe thrombocytopenia (5), bleeding and petechiae (all 8), enterocolitis (4), encephaloclastic injury (4).

The convention in our department is to use intravenous (IV) immunoglobulin and IV ganciclovir for 2-4 weeks and then, if oral intake is possible, to switch to oral valganciclovir for a longer period (six weeks and longer). All the treated children had significant clinical improvement with only residual neurological defects (2) and no hearing loss was registered.

Conclusions: In case of severe congenital cytomegalovirus infection there should be a complex therapy. In our department 8 newborns with severe congenital CMV treated with IV immunoglobulin, IV ganciclovir and oral valganciclovir had significant clinical improvement with only residual neurological defects and no deafness. In case of severe congenital cytomegalovirus infection we recommend a complex therapy including specific intravenous immunoglobulin and intravenous ganciclovir and oral valganciclovir (6 weeks and longer).

Patient	Age	weight	Tr, min, 103/mcl	Len, min, 103/mcl	Cholestasis	hemorrhagic syndrome	Brain ultrasound, MRI	IV ganciclovir	specific intravenous immunoglobulin, g/kg	oral valganciclovir	Neurodevelopmental outcome
1. Boy	34	1800	57	7,5	abs	Petechiae, gastroenteric hemorrhage	Mild ventriculomegaly striatal angiopathy	12 d	0,5	5 mon	Normal
2. Boy	36	1900	155	4,2	Mild cholestasis, NEC	ICH grade 2, subarachnoid	Subarachnoid of the left brain hemisphere	21 d	0,3	3 mon	Retardation
3. Boy	38	2680	26	5,6	Severe cholestasis, hepatitis, acholic stool, NEC	Petechiae	Striatal angiopathy, corpus callosum dysgenesis	28 d	0,6	5 mon	Normal
4. Girl	39	3240	41	5,2	Mild cholestasis, hepatitis,	ICH grade 1	Striatal angiopathy, corpus callosum dysgenesis	21 d	0,5	0,5 mon	?
5. Boy	37	2330	105	7,2	Mild cholestasis, hepatitis, NEC	Petechiae	Mild ventriculomegaly, striatal angiopathy	14 d	0,5	5 mon	?
6. Girl	37	2130	42	7,8	Mild cholestasis	ICH grade 2. Petechiae	Mild ventriculomegaly, striatal angiopathy	19 d	0,6	2 mon	?
7. Girl	38	2785	12	6,7	Severe cholestasis, hepatitis, acholic stool	Petechiae, intestinal bleeding	Mild ventriculomegaly, striatal angiopathy	21 d	0,3	5 mon	Normal
8. Girl	31	1200	11	2,1	Severe cholestasis, hepatitis, NEC	Petechiae, ICH grade 1, mucosal and intestinal bleeding	Periventricular leukomalacia	28 d	0,3	5 mon	Retardation, epilepsy

Biography:

Natalia Vaynshteyn, MD, Head of the Neonatology department, Speranskiy Moscow Children Hospital. Associate professor of the Pediatrics department, Pirogov Russian State Medical University.

The Neonatology department in the Speranskiy Children Hospital carries out diagnostics and treatment neonatal infectious and non-infectious diseases, such as UTI, respiratory tract, jaundice, CNS, GUT, hemorrhagic and nutritional disorders. Natalia Vaynshteyn has special interests in: neonatal infections, hemostasis disorders, nutritional problems in neonates, innovative technologies in medical education.

Optimising the delivery of parenteral nutrition in newborn care

Dr Y S Milner¹*, Dr W Stagg², Dr H McElroy²

¹Barts NHS Trust, London, UK

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The aim of nutritional support when caring for the preterm infant is to achieve a postnatal growth rate approximately similar to that expected of the normal fetus of an equivalent gestational age. However, most preterm infants fail to receive sufficient amounts of nutrients to support normal fetal growth rates. Subsequent growth restriction is a significant issue, with long-term implications for both physical and cognitive functioning. Here we present a single-centre quality improvement initiative that successfully optimised neonatal parental nutrition feeding regimens, resulting in higher protein and lipid intakes over the first 5 days of feeding as well as greater concordance with BAPM recommendations.

Audience Take Away:

- Parental nutrition is an essential component of neonatal care. Review of current feeding regimens is warranted to ensure identification of nutritional deficits and optimization of post-natal nutrition.
- Here we show that adjusted feeding regimens permitted the delivery of higher volumes of amino acids and lipids over the first 7 days of life. These larger volumes well tolerated and enabled greater attainment of BAPM guidelines.
- Variability in clinical practice regarding nutrition targets and PN prescription may need wider review to ensure greater accordance with BAPM guidelines.

Biography:

Dr Y S Milner is an Academic Foundation Year 1 doctor currently training at Barts NHS Trust. Prior to studying medicine she completed a BSc in Biochemistry and an MSc in Neuroscience. In addition to research interests relating to synaptogenesis and cortical development, Dr Milner has also published work about breast-feeding practices in south-Asian communities, lipid biomarkers in Major Depressive Disorder, and currently researches social prescribing in diabetes. She also enjoys working abroad volunteering in medical outreach programs that aim to improve access to health care for remote communities and marginalized groups; she has volunteered in Venezuela, Nepal, the Indian Himalayas, Botswana and Canada. In 2017, she received the Dr Abbas Khan Award for her contribution to humanitarian causes.

Tackling a hidden burden: Stillbirths in the developing world

Dr. Paula Quigley

Technical Lead, Reproductive, Maternal, Newborn, Child & Adolescent Health, DAI Global Health, London, UK

During the era of the Millennium Development Goals, the maternal mortality ratio fell by 45% worldwide and the global mortality for children under five years declined by more than 50%. Neonatal mortality also reduced but at a much slower rate. WHO estimated in 2015 that globally 2.7 million babies still die every year in the first 28 days of life and there are 2.6 million stillbirths, half of which occur during labour and birth, and almost of which all take place in low and middle-income countries. This problem has been largely neglected for many years although it is well known that most of these deaths and further maternal deaths could be prevented by providing high quality care during pregnancy and around the time of birth. Attention to neonatal mortality and stillbirths has increased in recent years with two Lancet Series highlighting the size and preventability of this burden and the development of the Global Every Newborn Action Plan (ENAP) in 2014.

The 2016 Lancet Ending Preventable Stillbirths series sought to highlight missed opportunities and identify actions for accelerated progress to end preventable stillbirths. The series concluded with a Call to Action covering three distinct areas – (1) 2030 mortality targets, (2) universal health care coverage targets, and (3) global and national milestones for improving care and outcomes for all mothers and their babies (as specified by the ENAP) and specifically for women and families affected by stillbirth. A Global Scorecard has been produced by the Stillbirth Advocacy Working Group (SAWG) to track progress at a global level towards this Call to Action. The SAWG, founded by the Partnership for Maternal, Newborn and Child Health in 2016 and co-chaired by the International Stillbirth Alliance and the London School of Hygiene & Tropical Medicine, is a group of academics, researchers, parents and advocates from diverse organizations. The SAWG's mission is to use advocacy for stillbirth prevention and post-stillbirth support. This presentation shares some of the practical examples that are being supported by one of the SAWG members in three countries – Indonesia, Nigeria and Zambia.

Audience Take Away:

- The audience will gain a broader understanding about the extent of the burden of stillbirths around the world in relation to neonatal mortality and how different countries are trying to address this.
- I would hope to stimulate greater interest in developing partnerships between researchers and healthcare providers in European and developing country institutions to share experiences and practical tools for preventing and managing stillbirths and early neonatal deaths.
- Even high-income countries have not systematically put in place adequate measures for dealing with stillbirths and can learn from some innovations happening in other countries.

Biography:

Paula Quigley is a medical doctor with a Masters' Degree in maternal and child health, and 30 years of overseas international health programme experience. She has lived and worked in Sri Lanka, Vietnam, Cambodia, India, South Africa and Zimbabwe, and has provided technical support in a wide range of additional countries. She currently works with DAI Global Health as the technical lead for reproductive, maternal, newborn, child and adolescent health & nutrition. She is also a member of the Stillbirth Advocacy Working Group (SAWG) co-chaired by the International Stillbirth Alliance and London School of Hygiene & Tropical Medicine.

Vitamin D in children – role beyond bones

Dr. Ashwani Kumar

Assistant Professor, Department of Pediatrics, Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar, Punjab, India

Vitamin D is a fat-soluble steroid hormone that contributes to the maintenance of normal calcium homeostasis and skeletal mineralization. The prevalence of subclinical vitamin D deficiency is not only restricted to rural population, but it is highly prevalent across the whole globe.

It affects the individuals irrespective of their gender, race and geography. It's deficiency is common in all age groups including the neonates. Although, it is commonly known as vitamin, but is actually not an essential dietary vitamin in the strict sense, as it can be easily synthesized by all mammals from sunlight in adequate amount.

Vitamin D not only plays an essential role in calcium homeostasis and bone mineral metabolism, but it also helps in performing a wide range of fundamental biological functions such as cell differentiation, inhibition of cell growth and immunomodulation. By inhibiting uncontrolled proliferation and stimulation of cell differentiation, Vitamin D helps to prevent development of autoimmune disorders and even common cancers. Prolonged usage of certain drugs (Glucocorticoids, cytochrome P450 enzyme inducers, anticonvulsants, antiretro viral agents etc.) and other health problems including chronic kidney disease, asthma, pneumonia, coeliac disease, liver disease, tuberculosis, cancers (prostate, breast and colon), diabetes etc. are associated with Vitamin D deficiency. The concept of vitamin D possessing important pleiotropic actions and owing to its multiple implications on health, the epidemic of vitamin D deficiency significantly contributes to the burden on the healthcare system and society.

Thus, it is desirable to update our knowledge about current research related to role of vitamin D beyond bone metabolism.

Audience Take Away:

- At the end of this lecture, audience will have in depth knowledge about the pleiotropic actions of Vitamin D apart from calcium homeostasis and bone metabolism
- This talk will prove beneficial for the listeners in their clinics and routine jobs as limited data is available in the literature about the association of Vitamin D deficiency with prolonged usage of various drugs and multiple comorbid conditions, which will be discussed in detail in this lecture.
- This talk will prove helpful for the faculty in guiding their research work and teaching.
- This talk can provide practical solutions regarding related to vitamin D deficiency

Biography:

Dr. Ashwani Kumar is M.D. Pediatrics. Presently, working as Assistant Professor in the Department of Pediatrics at Amritsar and has an academic affiliation with Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar. In addition to practicing pediatrics, he is teaching graduates and postgraduate medical students. He has published several research articles in renowned journals.

Focus on neonatal invasive infections caused by escherichia coli

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Escherichia coli (E. coli) is a versatile bacterial species that exists as a commensal organism in the lower gastrointestinal tract of humans as well as a pathogen that causes a variety of diseases. Some pathogenic E. coli strains cause diarrheal illness (intraintestinal pathogenic E. coli), whereas others cause extraintestinal infections (extraintestinal pathogenic E. coli [ExPEC]). Since the implementation of an intrapartum antibiotic prophylaxis program against group B Streptococcus in 1996, its global incidence with respect to newborn sepsis has decreased significantly. However, the overall incidence of E. coli has remained stable over the past few decades, and there has been a significant increase in this species in late-onset sepsis in preterm infants. E. coli is the leading cause of neonatal bacterial sepsis and meningitis. Neonatal meningitis occurs in roughly 0.2 to 1 per 1000 live births; it is closely associated with sepsis. Even countries with highly developed health care systems encounter high rates of mortality rates (10–30 %) due to the disease. Moreover, long-term neurological sequelae are common among more than half of the survivors. The worldwide burden of these extraintestinal infections is staggering.

Moreover, E. coli pathogens, particularly those causing extraintestinal infections, have developed resistance to every class of antibiotics introduced to treat human infections. Several surveillance studies during the 2000s across Europe and North and South America have shown that approximately 20–45% of E. coli isolates are resistant to first-line antibiotics including cephalosporins and fluoroquinolones. The production of extended-spectrum β -lactamases (ESBLs) is the main cause of such antibiotic resistance in E. coli. We have already had surveillance results in clinical isolates in neonates. Overall non-susceptible rates to amoxicillin were 72%, tetracycline were 66%, ceftriaxone were 50%, trimethoprim-sulfamethoxazole were 48%, cefepime were 42%, and ciprofloxacin were 36%, respectively. During the 1980s and 1990s, SHV or TEM types were the major types of ESBLs identified among clinical isolates. However, since the mid-2000s, CTX-M β -lactamases have become the most common and widespread type. ST131 is considered the most common ESBL-producing E. coli type that causes urinary tract infections and bloodstream infections worldwide. Since 2012, ST1193 has emerged as a new virulent clone of fluoroquinolone-resistant E. coli in several countries.

Developing alternative strategies to prevent/eliminate these E. coli infections requires fully understanding the constant epidemiological surveillance of antibiotic-resistance trends of these bacteria, as well as the transmission risks. The transmission of E. coli strains from the mother to the newborn frequently occurs during passage of the neonate through the vaginal canal. Thus, programmes to screen for vaginal and rectal colonization of pregnant women by E. coli, particularly those neonates with sepsis and meningitis, may be effective for infection prevention. Few studies highlighted similarities between newborns and their mothers.

It is important to know well about E. coli and decrease the morbidity and mortality rates from invasive infection with E. coli among neonates.

Audience Take Away:

- To know well about neonatal invasive infections caused by E. coli.
- To monitor the hospital antibiotic resistance of E. coli.
- To find the way to control the transmission of E. coli strains from the mothers to the newborns in order to prevent/eliminate E. coli these infections in neonates.
- Other faculty could use to expand their research.

Biography:

Dr. Yajuan Wang is a neonatologist with good education and expertise in pediatric diseases, especially in infectious diseases. She currently serves as the vice director of Department of Neonatology, Beijing Children's Hospital, Capital Medical University, National Center for Children's Health, Beijing, China. In addition to practicing neonatology, Dr. Wang has participated in educational and research projects.

Probiotics in paediatric practice

Biljana Vuletic, MD, PhD

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The first consensus on definitions in the field of probiotics between the FAO (Food and Agriculture Organization of the United Nations) and the World Health Organization (WHO) was adopted in 2001. Then, probiotics were defined as “live microorganisms, which, when administered in adequate amounts, confer a health benefit on the host” but already in the following year, in 2002, the FAO/WHO working group issued more detailed instructions on the interpretation of the document produced. Several professional associations reached the agreement on the assessment of probiotics based on the results from available clinical studies according to “evidence-based medicine” which lead to the clinical recommendation. They refer to specific clinical indications such as the treatment and prevention of acute gastroenteritis (AG) in children and adults (*Lactobacillus rhamnosus* LGG, *Lactobacillus casei*, *Lactobacillus reuteri*, *Saccharomyces boulardii*), necrotizing enterocolitis (NEC), antibiotic-associated diarrhoea (LGG, *L. casei*, *Saccharomyces boulardii*), irritable colon, infant colic (*Bacillus infantis* and *L. reuteri*), in the case of *H. pylori* eradication, mild ulcerative colitis (UC) with the probiotic VSL#3, but with disappointing results in the remission of Crohn’s disease and prevention of food allergy.

Conclusion: The capacity of probiotics to cure illnesses and relieve symptoms varies between different strains, drawing the conclusion of their uneven efficacy and appropriateness in the treatment of every illness conditions. Special caution is advised in immunocompromised and severely ill patients in the Intensive Care Unit (ICU).

Keywords: probiotics, children, gut health

Audience Take Away:

- Several years ago, the term “microbiota” was completely unknown to doctors, researchers, and the general population. This new term – microbiota – replaced the previous one – “gut flora” – based on the facts that microbiota plays a key role in the intestinal ecosystem and the disorder of this system has far-reaching consequences not only on the gastrointestinal tract (GIT) but also on the body as a whole, and that the maintenance of a preferable type of microorganisms in the microbiome is a prerequisite for good health.
- Therefore, the latest data are not surprising and show that most of these microbiota control numerous physiological and pathological processes and any collapse of the microbial equilibrium is in association with a serious GI disease or outside the GIT. This specific microsystem has evolved over the course of several million years.
- Nowadays, the functions of the GIT microbiota are well known. The immunomodulatory role, among others, is based on raising the level of cytokine and interaction with Gut-Associated Lymphoid Tissue, the largest lymphatic organ in the human body that produces 70-80% of immune cells. Intestinal bacteria have a protective function by their competitive binding to receptors on the surface of epithelial cells, produce numerous antimicrobial agents (e.g. bacteriocins) and inhibit the growth of carcinogenic bacteria such as *Citrobacter rodentium* and *Streptococcus bovis*, have an important structural role in strengthening the intestinal barrier through the synthesis of structural proteins that enhance the enterocyte tight junction and, at the same time, induce the IgA synthesis. Metabolic function of the microbiota is no less important, and it is based on the proliferation and differentiation of intestinal epithelial cells providing energy substrate (butyrate and short-chain fatty acids (SCFAs)). They are also involved in the transformation of steroids and fatty acids as well as the fermentation of dietary fiber and ions, and it is also known that they synthesize B-group vitamins and vitamin K.
- Finally, the latest findings suggest that microbial colonization in infants is correlated with their neurological development, and evidence-based medicine shows the association between the disruption of this colonization process and CNS dysfunction with far-reaching effects on mental health later in life (behavioral disorder, development of anxiety and depression) through the so-called gut-brain axis.
- In line with the increasing understanding of the role of the microbial gut in overall health and disease, the focus of medical research is no longer just on the treatment of GI disease, but a step forward was made towards primary prevention, improving the composition of the microbiome, and maintaining the so-called ‘gut health’. In this sense, the approach has been changed and the management of common bad conditions involves deliberate probiotic-based modulation of the gut microbiota composition.

Biography:

Biljana Vuletic, MD, PhD is Associate Professor of Pediatrics at the Faculty of Medical Sciences University of Kragujevac and Chief of the Department of Gastroenterology of Pediatric clinic and a full ESPGHAN member. Dr Vuletic received her medical degree from the Medical faculty University of Belgrade. She started her residency in Pediatrics at the University Children's Hospital University of Belgrade. Her main clinical interests include chronic intestinal failure, Coeliac disease and other autoimmune disorders and clinical nutrition. Prof. Vuletic has summarized 168 publications including authored or co-authored papers in peer-reviewed journals and also chapters in the National Monographs and Textbooks Published in Serbia.

Targeted next generation sequencing and exome sequencing in the causal diagnosis of hydrops fetalis.

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Introduction: Fetal anemias are serious complications during pregnancies, which may lead to fetal death in case of hydrops fetalis occurrence (1/3000 pregnancies). Most of the causes responsible for fetal anemia and hydrops fetalis are fetal maternal alloimmunization, parvovirus B19 infection, fetal maternal hemorrhage, chromosomal abnormalities, congenital malformations, metabolic diseases, and in the hematological disorders, the first one to invoke, the alpha-thalassemia. In one case out of 5, fetal anemia remains unexplained after an exhaustive first line etiological evaluation. In order to identify the cause of the unexplained fetal anemia and to offer a prenatal diagnosis during the next pregnancy, we have developed helpful diagnostic tools on fetal blood based on erythrocyte and reticulocyte indices, red cell morphology cytological analysis, flow cytometry (EMA test), osmotic gradient ektacytometry and molecular screening analysis.

Results and Discussion: 43 fetal samples (30 probands) have been addressed to our Hematology laboratory in Robert DEBRE hospital, Paris from the time course 2012-2018. The study has been done most of the time in fetal blood (23 out of 43) or after fetal death during post-mortem examination (17 out of 43). Fetal blood purity has been confirmed by microsatellite analysis in both parent and fetal DNA. Informed consent has been signed by the mother in each case. In 6 cases out of 43, it was a prenatal diagnosis after identification of the causal mutation responsible for the hydrops fetalis in the first fetus. A hydrops fetalis was present in 24 cases at the moment of the fetal sample collection. Cytological red cell morphology and ektacytometry allowed to determine the clinical diagnostic (two distinct fetuses affected with congenital dyserythropoiesis type II (CDAIL) and xerocytosis). Molecular screening analysis has been done by sanger sequencing technique from 2012 to July 2016. We designed then a targeted Next Generation Sequencing (NGS) library including 74 genes involved in red cell disorders (n=9 fetuses) and exome sequencing has been performed for 4 fetuses (LABEX GR-Ex, Imagine platform, Necker hospital, Paris, France). Each allelic variation has been confirmed by Sanger technique. Molecular Biology analysis (except the 6 Prenatal diagnosis cases) has been completed in 21 out of 37 fetuses. We have identified the molecular defect in 10 fetuses. Rare red cell disorders have been diagnosed in these fetuses DNA including Diamond-Blackfan anemia (n=2), congenital dyserythropoiesis (n=6) and stomatocytosis (n=2) respectively. 4 fetuses exhibited no putative pathogenous allelic variation at the end of the molecular screening. On the 6 prenatal diagnosis done, none of the tested fetuses exhibited the allelic variation identified in the first fetus.

In conclusion, targeted-NGS and WES are valuable tools in the causal diagnosis of hydrops fetalis due to unexplained anemia in addition to the regular hematological tests (erythrocyte and reticulocyte indices, red cell morphology, flow cytometry, and ektacytometry) and after elimination of the most frequent causes of hydrops fetalis.

A mouse model reproducing the pathophysiology of neonatal group B streptococcal infection

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Group B streptococcal (GBS) meningitis remains a devastating disease. The absence of an animal model reproducing the natural infectious process has limited our understanding of the disease and, consequently, delayed the development of effective treatments. Knowing that in human the bacterium is vertically transmitted, we developed a mouse model in which bacteria are transmitted to the offspring from vaginally colonised pregnant females, the natural route of infection. Thus, pregnant BALB/c mice were intravaginally inoculated with the serotype III hypervirulent strain CC17 BM110 or with the attenuated isogenic mutant BM110ΔcylE, that does not express the pore-forming toxin β-hemolysin/cytolysin (β-h/c), at the 17th and 18th days of gestation. Vaginal colonisation was monitored upon delivery by vaginal lavage. At day one after birth, and with both GBS strains, the vaginal mucosa of all females presented high bacterial load enabling the vertical transmission of the bacterium. Thereafter, the bacterial levels started to decrease, but more abruptly with BM110ΔcylE mutant than with BM110 WT. Moreover, a transient and intermittent colonisation with BM110 WT was observed in their genital tract after delivery. Pups exposed to the more virulent strain exhibit higher mortality rates and lung pathology than those exposed to the attenuated strain. GBS was also quantified in the brain of pups, and the level of colonisation was always slightly less in pups born from BM110ΔcylE-colonised progenitors than that observed in pups born from BM110 WT-colonised mothers. Moreover, the brain of pups infected with BM110 WT exhibited the hallmarks of meningitis such as meningeal congestion, vascular hyperaemia, and oedema. Interestingly, both strains were detected in the gut during the neonatal period and adulthood, revealing that GBS-commensalism is likely established during early life, and could be a cause of transition to invasive niches. Using this model, we also found that during the neonatal period, BM110 WT infected pups presented decrease proportion of Ly6G-Ly6Chi monocytes in the brain, increased microglia activation and a morphology shift towards a reactive phenotype, neuronal apoptosis and reactive astrogliosis. Notably, as in humans, the surviving offspring presented neurological developmental disability, revealed by impaired learning performance and memory in adulthood, as evaluated in the radial maze. The intrapartum antibiotic prophylaxis is routinely used to prevent neonatal diseases. Thus, to test our model, BM110-colonised pregnant mice were prophylactically treated with ampicillin added to their drinking water from gestational day 20 (one day before delivery) until postnatal day 1.

This treatment significantly increased neonatal survival, showing that our mouse model can be used to test the efficacy of new prophylactic treatments against neonatal GBS infections. Altogether, our data show that this novel experimental model closely mimics the human GBS infection during birth and is the first that enables a mother-to-child transmission leading to GBS-induced diseases. The use of this new mouse model will promote a better understanding of the physiopathology of GBS-induced meningitis.

Audience Take Away:

- Increase awareness for GBS-induced disease and prevention
- Understand the relevance of good animal models to study disease
- This model will promote a better understanding of the physiopathology of GBS-induced meningitis

Biography:

Elva Bonifácio Andrade has a degree in Biochemistry and a PhD in Biomedical Sciences obtained at Institute of Biomedical Sciences Abel Salazar, University of Porto. Her PhD studies focused on the characterization of the innate immune mechanisms leading to neonatal susceptibility to Group B Streptococcus (GBS) infections. As a postdoctoral researcher, she has focused on the development of the first mouse model that recapitulates GBS neonatal infection pathogenesis, with similar features to that described in humans. Her focus now is to use this clinically relevant tool to study the pathophysiological mechanisms directly related to the central nervous system during GBS meningitis.

The role of highly active antiretroviral therapy (HAART) on interleukin 17A (IL-17A) in normotensive and pre-eclamptic black south african women

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Introduction: Interleukin 17-A (IL-17A) has been implicated in the pathophysiology of both human immune deficiency virus (HIV) and preeclampsia (PE). This study evaluated serum levels of IL-17A in HIV-negative and HIV-positive normotensive and preeclamptic women receiving highly active anti-retroviral therapy (HAART).

Material and Methods: A sample size of 250 was analysed. Normotensives (n=150; N), pre-eclamptics (n=100; PE). Normotensives were further stratified into HIV negative (n=90), HIV positive (HAART: acute) (n=30) and HIV positive (HAART: chronic) (n=30). The PE group was divided into early onset (n=50; EOPE) and late-onset (n=50; LOPE). The EOPE and LOPE groups were subdivided into HIV negative (n=30), HIV positive (HAART: acute) (n=10), and HIV positive (HAART: chronic) (n=10). Analysis of IL-17A was performed using multiple Bio-Plex immunoassay method.

Results: With regards:-

Pregnancy type;

The levels of IL-17A were significantly increased in N compared to PE (P= 0.0012).

Gestational age;

The levels of IL-17A were significantly different between (N vs EOPE vs LOPE) (P=0.0044). The levels of IL-17A were significantly increased in N compared to the EOPE (P=0.0113) and between N compared to the LOPE (P= 0.0063).

HIV status;

The levels of IL-17A were significantly increased in HIV negative N compared to LOPE (P= 0.0429).

HAART duration; HAART-chronic:

The levels of IL-17A were significantly increased in (N vs PE) (P=0.0086), (N vs EOPE vs LOPE) (P= 0.0179) and N vs EOPE (P=0.0042).

Conclusion: The study demonstrates that IL-17A is involved in maintaining normal pregnancy and that reduction in IL-17A is involved in the pathophysiology of PE.

Audience Take Away:

- Improve Understanding on the pathophysiology of pre-eclampsia in HIV associated pregnancies by with regards the levels of IL-17A in normotensives compared to early onset and late onset re-eclamptic
- The level of IL-17A can improve their knowledge on the predictive risk indicators of pre-eclampsia in HIV-associated pregnancies
- Other faculty can expand to this research as by looking at the other ethnic groups and also by looking at the placental tissue instead of serum used in the current study in order to validate the current findings

Biography:

Ms. Wendy N Phoswa enrolled for BSc Medical Science at the University of KwaZulu Natal, South Africa in 2011 and graduated in 2015. She then did her BSc honours In Medical Science (Physiology) and graduated in 2016. She enrolled for a Master's degree in Medical Science in Physiology and graduated (Summa cum Laude) in 2017. She is currently enrolled for PhD in Medicine at the University of KwaZulu Natal (Nelson R Mandela School of Medicine) looking at immune markers and gene polymorphisms in HIV associated pre-eclamptic pregnancies. Miss Phoswa is also working as a Physiology Lecturer at the University of South African. She has published 3 research articles.

Music as a therapeutic tool with hospitalized babies at risk: Neonatology and PICU.

María Jesús Del Olmo (Phd, Mt)

Universidad Autonoma, Madrid (Spain), Music Department

Since May 2002, a Music Therapy Programme has been going on at the Children's Hospital La Paz in Madrid. The reception of this Music Therapy Programme by the hospital community at the Children's Hospital La Paz has been fantastic from the very first day.

The therapeutic use of music as an influence on the physical, psychological and / or emotional states of patients before, during or after medical treatment (Loewy, 2013; Benardi, 2006; Calabro, 2005; Del Olmo 2015), as well as the non-verbal nature of music makes it a universal means of communication.

Within a hospital context, the need for communication is exceedingly important, since there are a number of potential difficulties added to the disease itself, such as loss of autonomy, physical pain, not being able to verbalize feelings, strong emotions, and many other physical or psychic causes. And it is here where the music therapist acts as a carrier of information about the patient's condition from another, different perspective.

The Music Therapy Programme, framed in the broader Humanization Plan at the hospital, aims to either stimulate or relax the admitted patients to facilitate their needs for communication, learning, mobility, and expression while at the same time tries to streamline their full period at the hospital.

Through different techniques, the music therapist makes his / her intervention (with musical instruments and voice) by taking into account the general condition of the patient and the specific treatment previously established by the medical and nursing teams. Sometimes the goal is to help the child relax before or during a cure (to mitigate pain) or, alternatively, to stimulate the child (by being the active focus of attention or distraction). At other times the objective may be to mask "unpleasant" sounds coming out of the Pediatric Intensive Care Units or the Neonatal Intensive Care Units.

Music therapy also helps to obtain information about the patient's physical and emotional state, especially when it comes to patients who have difficulty verbalizing how they find themselves.

The music therapy sessions begin with the musical intervention with the patient, their relatives or sometimes with other professionals concerning treatments that may be being carried out at that particular moment (cures, chemotherapy etc.), by using musical instruments such as: keyboard, guitar, transverse flute and the voice, in addition to those that are offered to be played by the patients themselves, such as small percussion instruments which sometimes are used in their musical improvisations.

Audience Take Away:

- Examine the sound aspect of each unit and its possible consequences on the stress of the patient, the family and the medical and nursing team. Possibilities to improve the sound environment.
- Using music as a means of communication and emotional expression of hospitalized children.
- Keeping track of a particular disease or condition and how music better face certain objectives are achieved. Establish the work methodology taking into account what kind of music is more appropriate, focusing attention on the different musical elements: rhythm, harmony, musical style, etc.

Biography:

María J Del Olmo is Graduated in Musical Pedagogy, Royal Conservatory (Madrid). Degree as Music Therapist, Center for Music Therapy Research MI-CIM (Bilbao). Member of the Atelier de Musicotherapie de Bordeaux A.M.Bx, France. Founding member of the program RBL (rhythm, breathing and lullabies) Albert Einstein College of Medicine. The Louis Armstrong Center for Music & Medicine. Beth Israel Hospital, NY.

Professor in the Music Department at Universidad Autonoma, Madrid. Director of the Music Therapy Master Degree at Universidad Autonoma, Madrid. Collaborates with different training programs in several Spanish and foreign universities. Director of the Music Therapy Program at La Paz Hospital, Madrid. Chairperson of the Music Therapy and Health Foundation, Spain.

Comparison of incidence of nasal carriage of staph aureus in children of parents with hospitals employees and other jobs in kindergartens in AJA University

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Background: Asymptomatic carriage of *Staphylococcus aureus* is common and one of the common sites (20-30%) is in the nose. On the other hand, it is a known cause for wide range of infectious disease. In current study, we evaluated the incidence of *Staphylococcus aureus* in the nostril of kids, in 2 groups, first whose mothers were working in a hospital and second whose mothers were on other jobs in the kindergartens at the AJA University in 2018.

Methods: In this cross-sectional study, all children aged 1-6 years were included. The demographic information was collected and *Staphylococcus aureus* was isolated and identified from nasal swabs via standard microbiologic methods.

Result: In this study, 120 children were examined. The mean age of these children was 4.03 ± 1.04 years. Male: female ratio was 1.18:1. 76 (63 %) mothers were hospital's staffs and 55% had direct contact with the patients. Nasal cultures were positive for *Staphylococcus aureus* in 24 (20%) samples, of which 4 (3.3%) were MRSA. there was no relation between age and sex of kids and also their mother jobs with positive results.

Conclusion: *Staphylococcus aureus* is still a common human pathogen with a considerable morbidity and mortality. Methicillin-resistant *Staphylococcus aureus* (MRSA) may be seen in nasal carriers and it is important to consider hygiene and parents job when we have kids in a day care centre such as kindergartens.

Keywords: *Staphylococcus aureus*; Nasal carrier; Children

Audience Take Away:

- Our article is about *Staphylococcus aureus* nasal carriers. On the other hand, we know one of the most children complains in our clinic is pharyngitis and it is more prevalent in winter. If we have a throat culture, we may find *Staphylococcus aureus*. Is it pathologic? Does it need treatment? When should be treat it? Who must be treated? These all our main purposes of our article.
- I have worked more than 20 years as a pediatrician and I'm the medical school teacher. so I believe it is one of the usual question for pediatric students and also general practitioners. I hope to be helpful

Biography:

Banafshe Dormanesh has completed her medicine in 1993, completed her pediatric specialty in 1997 and Pediatric Nephrology subspecialty in 2002 from the Tehran University of Medical Sciences. She is associate professor in pediatric nephrology and is the Head of Pediatric Department in Faculty of Medicine. She has over 60 publications (papers and book chapters) that have been cited over 300 times, and /her publication H-index is 7 and she is Associate Editor in AMHSR Journal and Head of the editorial board member(Clinical Sciences and Practice , Family Medicine) in JAMM Journal .

Construction and validation of content of checklist for patient safety in the administration of medicines in pediatrics.

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Objective: To build and validate a list of patient safety actions in the administration of medicines in pediatrics. Method: Methodological research, using theoretical referential described by Lobiondo-Wood and Haber (2001), carried out in Lambayeque in 2018. This is a study developed in two stages: construction of the instrument, developed from the instrument for evaluating actions to promote patient safety in drug administration in pediatric units of two hospitals in Fortaleza -Brasil por Araujo (2016), created from the verification items for administration of medications proposed by the Safety Protocol in the Prescription, Use and Administration of Medicines (BRAZIL, 2013); analysis of the content validity of the measuring instrument, carried out by seven judges in the period from December to January 2018 and validated by the reliability evaluation of the measuring instrument; and clinical validation of the instrument of measurement, carried out with 25 professionals acting in the Pediatrics services of the hospital in the city of Lambayeque-Peru, from February to March 2018. The Checklist was guided by 07 specialists; nurses doctors, teachers in the area of pediatrics with experience in patient safety and validation studies. Results: the observations were analyzed through the descriptive statistics, the data were processed in SPSS.20, for calculation of adhesion rate, Content Validity Index (IVC), Cronbach's Alpha) and Chi square Test and Wilcoxon Test.

The study obeyed the requirements of Resolution 466/2012 of the National Health Council, having obtained a favorable decision to its development under Opinion No. 2,583,089. It is concluded that the instrument is valid and reliable, in the identification during the nursing care practice of the promotion actions for patient safety during the process of administration of medicines in Pediatrics services.

Keywords: Construction, Validation. Patient safety. Use of medications Pediatrics.

DAY 2

POSTERS

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Maternal DHA supplementation improves transplacental Fe homeostasis and supply to the foetus

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Iron (Fe) and docosahexaenoic acid (DHA) play important roles in the correct functioning of the organism and though it is known that some interactions exist among them, these have not been considered in the numerous studies of mother DHA supplementation. It is of great importance to know this interaction during the pre- and postnatal life. The current study evaluated for the first time the effect of maternal DHA supplementation on expression of key genes and proteins involved in transplacental Fe metabolism and mineral placenta content. One hundred and ten pregnant women were randomly assigned to one of the following intervention groups: control group (n=54), administered 400 ml/day of the control dairy drink, and DHA-supplemented group (n=56), administered 400 ml/day of the fish oil-enriched dairy drink (approximately 400 mg DHA-EPA/day). After labor, samples were taken from the central part of the placenta. DMT1, FPN1, TfR1 mRNA and protein expression in the placenta tissues were analyzed by qPCR and Western blot. DMT1, FPN1, TfR1 gene expression were enhanced in the placenta of DHA supplemented mothers in comparison with the control group ($P < 0.001$). In addition, DMT1 and TfR1 protein levels were also significantly increased in placenta of the DHA-supplemented mothers ($P < 0.01$ for DMT-1; $P < 0.001$ for TfR1). Maternal supplementation with DHA might improve transplacental Fe homeostasis because of increased expression (gene and protein) of transport proteins, which could be beneficial for transplacental Fe transfer and ultimately boost neonates Fe stores at delivery. This strategy in pregnant mothers might be an alternative to Fe supplementation and its inherent toxic complications.

Audience Take Away:

- This study evaluated the effect of maternal DHA supplementation on Fe metabolism.
- DHA supplementation increased gene expression related to iron metabolism.
- This nutritional strategy in pregnant mothers might be an alternative to iron supplementation and its inherent toxic complications and could alleviate the adverse effects of iron deficiency such as low birth weight, premature birth, and perinatal death of the neonates.

Biography:

Mr. Jorge Moreno-Fernandez is a Pharmacist and Master in Human Nutrition, with expertise in oxidative stress, mineral metabolism, molecular biology and neonatal nutrition. He currently serves as assistant researcher at Physiology Department and has an academic affiliation with the University of Granada (Spain).

Maternal DHA supplementation improves neonatal bone turnover

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There are two stages of vital importance in bone development (gestation and lactation) and any modification in these periods would cause a greater risk of pathologies in later life. Bone turnover process begins in uterus, during the early stages of pregnancy, to ensure proper foetal development and suitable mineral content to protect the skeleton of the neonate. The role of DHA in bone health is a relatively new subject of study and taking into account these considerations, the aim of this study was to evaluate for the first time the effect of DHA supplementation during pregnancy and lactation on bone metabolism in mother and their neonates. 110 pregnant women were divided in two groups: control group (400 mL/day of the control dairy drink); supplemented group (400 mL/day of the fish oil enriched dairy drink). After delivery blood samples were collected from the umbilical artery and also at 2.5 months of life a sample of blood from all the neonates was obtained. In neonates, DHA supplementation increased ACTH, insulin, leptin and OC, diminishing PTH. In umbilical artery, DHA supplementation increased OPG and leptin and diminished TNF- α . It has been reported that ACTH may stimulate osteoblast proliferation through specific receptors on these cells, which would enhance bone formation. Leptin has a double mechanism on bone metabolism, stimulating bone formation and also improves bone strength. Therefore, DHA supplementation during pregnancy and lactation has beneficial effects on bone turnover in the mothers and their neonates, being the most noteworthy effect recorded in the neonate at 2.5 months of postnatal life.

Audience Take Away:

- This study evaluated effect of DHA during pregnancy and lactation on neonatal bone metabolism.
- There are two stages of vital importance in bone development (gestation and lactation) and any modification in these periods would cause a greater risk of pathologies in later life.
- DHA supplementation during pregnancy and lactation has beneficial effects on bone turnover in neonates, being the most noteworthy effect recorded in the neonate at birth and during first two months of postnatal life.
- DHA supplementation during the last trimester of pregnancy and lactation could be a beneficial nutritional support for bone development during these stages.

Biography:

Mr. Jorge Moreno-Fernandez is a Pharmacist and Master in Human Nutrition, with expertise in oxidative stress, mineral metabolism, molecular biology and neonatal nutrition. He currently serves as assistant researcher at Physiology Department and has an academic affiliation with the University of Granada (Spain).

Comparison of pragmatic aspects of language development between children born preterm and full-term

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The evolution of neonatal intensive care has increased the survival rates of at-risk newborns and elevated the tendency for deviations in language, speech, motor, auditory, and cognitive acquisition and development. Delay in language acquisition is one of the disorders in preterm children described in literature. This study aimed to compare the language development of children born preterm (PT) and full-term (FT). Methodology: Two groups were selected for this study: a research group, composed by a randomized sample of 35 mother-PT children dyads followed up at the Neonate Follow-Up Program; and a control group, composed by 26 mother-FT children dyads who had no history of pre-, peri-, or post-natal complications and no development complaints. The infants were aged between 12 and 30 months at the time of assessment. The Language Use Inventory protocol was used to evaluate the pragmatic aspects of language development. Findings: The PT and FT children had a mean birth weight of 1317.7 g (SD = 421.7) and 3076.4 g (SD = 532.8), respectively, and mean gestational age at birth of 30.6 + 3.4 weeks and 38 + 1.5 weeks, respectively. The mean length of hospital stay for the PT infants was 51.8 + 42 days; all of them needed special care during hospitalization. In the analysis of language measurements, the inventory showed significant differences between FT and PT ($p < 0.001$; $p < 0.05$). The performance of PT children correlated to chronological age ($c = 0.627$; $p = 0.001$) and length of hospital stay ($c = 0.695$; $p = 0.000$). The performance of both groups to used sentences during conversation correlated to birth weight (FT: $c = 0.413$, $p = 0.036$; PT: $c = 0.423$, $p = 0.44$). Conclusion: The conjunction of biological and socio-environmental factors can directly influence the communicative-linguistic development of children born preterm.

Audience Take Away:

- With the evolution of neonatal intensive care, the rate of survival of at-risk newborns has increased, which has also elevated the risk of language and communication disorders, and these disorders can occur even in the absence of brain lesions or major disabilities
- Premature children may have lower language development than full-term children
- The conjunction of biological and socio-environmental factors can directly influence the communicative-linguistic development of children born preterm.
- This research reinforce the idea that during development, premature children must receive differential follow-up regarding their development and growth so that any alterations may be identified as soon as possible. Thus, early intervention should be instituted to minimize the consequences

Biography:

Dr. Beatriz Servilha Brocchi is a Researcher at the Pontifical Catholic University of Campinas. She holds a postdoctoral degree in Experimental Psychology from the University of São Paulo (2012) and in Human Communication Disorder from the Federal University of São Paulo (2017). She holds a bachelor's degree in Speech-Language Pathology from the Pontifical Catholic University of Campinas (2002), a Master's degree in Psychology from the Pontifical Catholic University of Campinas (2005), and a PhD in School and Developmental Psychology from the University of São Paulo (2009). Her studies are related to the development of children's language, mother-child interaction, development of language prematurity, and language and intervening factors in the process of acquisition and development of oral language.

Relationship between language development and birth conditions of children born premature

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Delay in language acquisition is one of the disorders in premature children described in literature. The effects of prematurity, in association with such birth conditions as weight, may be considered a risk factor for the development of children's language. This study aimed to relate weight, gestational age, and length of hospital stay with the language development of children born premature. Methods: Participants were 28 parents and their children aged 0 to 24 months corrected, with diagnosis of prematurity who were born with weight below 1500 g and/or gestational age below 33 weeks. The children were evaluated in the post-discharge routine of the same hospital of birth, through the Initial Acquisition Scale of Speech and Language. The protocol, used as a screening instrument for children aged 0 to 36 months, is divided into three categories: auditory-expressive, auditory-receptive, and visual. The evaluation data were related to the variables of weight at birth, gestational age, and length of hospital stay. Findings: The children had, on average, 4.93 months of corrected age (SD = 4.30). They presented, on average, a birth weight of 1427 g (SD = 551.24), gestational age of 30.93 weeks (SD = 2.4), and length of hospital stay of 50.96 days (SD = 23.3). More than half of the children achieved the expected performance for age in the auditory-expressive (64.1%) and visual (60%) categories. Half of them presented the same result for auditory-receptive (50%) and overall performance (57.1%). We observed a positive correlation between birth weight and the auditory-expressive category ($c = 0.462$, $p = 0.013$) and overall performance ($c = 0.378$, $p = 0.047$): a higher weight related to better scores in the categories. Meanwhile, a longer hospitalization time related, albeit weakly, to worse test performance. Conclusion: Half of the children showed the expected performance at the corrected age. The weight variable was an intervening birth condition in the language acquisition of preterm infants.

Audience Take Away:

- With the evolution of neonatal intensive care, the rate of survival of at-risk newborns has increased, which has also elevated the risk of language and communication disorders
- Birth conditions could be considered a risk factor for impaired language development, especially the weight variable
- Premature children must receive differential follow-up regarding their development and growth so that any alterations may be identified as soon as possible. Thus, early intervention should be instituted to minimize the consequences

Biography:

Dr. Beatriz Servilha Brocchi is a Researcher at the Pontifical Catholic University of Campinas. She holds a postdoctoral degree in Experimental Psychology from the University of São Paulo (2012) and in Human Communication Disorder from the Federal University of São Paulo (2017). She holds a bachelor's degree in Speech-Language Pathology from the Pontifical Catholic University of Campinas (2002), a Master's degree in Psychology from the Pontifical Catholic University of Campinas (2005), and a PhD in School and Developmental Psychology from the University of São Paulo (2009). Her studies are related to the development of children's language, mother-child interaction, development of language prematurity, and language and intervening factors in the process of acquisition and development of oral language.

System development of telesimulation for neonatal resuscitation and NICU telemedicine

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Since about half of deliveries are carried out in local obstetric clinics in Japan, instructors are expected to improve resuscitation skills of workers engaged in delivery in the community. In this study, we developed a simulation tool for the remote support of neonatal resuscitation applicable for telemedicine. We developed seven simulation-based education tools : 1) Stethoscope with a built-in speaker, 2) simulated pulse oximeter (iOS application operated using an iPad), 3) iPhone iOS application for wireless operation of 1) and 2), 4) compact camera for video recording of resuscitation training, and 5) iPad for debriefing of training. In addition, 6) a bag valve mask-equipped atmospheric pressure sensor and 7) chest-compression monitoring-sensor were developed for remote evaluation of the reliability of resuscitation techniques of trainees. All these tools were wireless-linked through Wi-Fi and Bluetooth to prepare a remote support system.

We used this system in neonatal resuscitation training in Kingdom of Bhutan. We operated this system from Japan and could be carried out without equipment failure. There was no two-way communication time-lag and facilitation by an instructor from a remote location was mostly the same as in a normal session. The instructor could easily evaluate the skills of the trainees through a streaming video and monitoring index.

It was suggested that the system contributes to cooperation between a tertiary medical facility and local delivery facilities. Since the real cost was low, about 300 US dollars excluding the cost of the mobile device, its introduction may serve as an important social foundation for regional cooperation in not only Japan but also developing countries worldwide. If 4)-7) of the system described above and communication environment can be prepared, remote support of neonatal resuscitation in a clinical practice may be possible.

Audience Take Away:

- These devices provide high-quality neonatal resuscitation education at low cost.
- This system allows for education and training of learners at an off-site in any region of the world.
- This system allows for inter institutional networking and collaboration.

Biography:

Dr Kogoro Iwanaga is neonatologist with expertise in Endocrinology and NICU telemedicine. He currently serves as the director of the NICU at Kyoto University Hospital, Japan. In addition to practicing neonatal endocrinology, Dr. Iwanaga is a member of neonatal cardio-pulmonary resuscitation training committee in Japan, and involved in educational-system developing team in Kyoto University and Ritsumeikan University. He has participated in educational and medical support projects “the Kyoto University Bhutan Friendship program” in Bhutan

Relationship between platelet counts and plateletcrit in the first 24 hours of life and haemodynamically significant patent ductus arteriosus in preterm infants

Yi Ren*, Xiangyu Gao, Di Huang, Bo Yang

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Objective: To investigate the relationship between platelet counts (PLT) and plateletcrit (PCT) in the first 24 hours of life and the incidence of haemodynamically significant patent ductus arteriosus (hsPDA) in preterm infants.

Methods: The preterm infants were admitted to NICU of The Affiliated XuZhou Hospital of Southeast University from Nov 2012 to Jul 2017. Totally 760 preterm infants were chosen by the inclusion criteria and exclusion criteria. The following data were retrospectively collected: the PLT, PCT, platelet distribution width (PDW), mean platelet volume (MPV), platelet-large cell ratio (P-LCR) in the blood routine examination of venous blood in the first 24 hours of life, the correlative factors of PDA (gender, birth order, gestation age, hypertension of pregnancy, a complete course of hormone before delivery, premature rupture of membranes more than 18 hours, cesarean, birth weight, small for gestational age, 5-minute Apgar score, respiratory distress syndrome, positive pressure ventilation more than 3 days, and fluid intake and urine volume in the first 3 days of life), and echocardiography examination at the 4-7 days after birth. According to the diagnostic criteria of hsPDA, all preterm infants were divided into the non-PDA (nPDA) group (587 cases), non-hsPDA (nhsPDA) group (106 cases), and hsPDA group (67 cases). SPSS 20.0 software was used for data analysis. Data were compared by chi-square test, LSD or Tamhane's T2 of one-way analysis of variance, the receiver operating characteristic (ROC) curve or binary logistic regression analysis.

Results: There were no significant difference in the PDW, MPV, and P-LCR in the first 24 hours of life among three groups ($P>0.05$). The smaller the gestation age, birth weight, PLT, and PCT ($P=0.033, 0.000, 0.000, 0.000$, respectively) in the first 24 hours of life were, and the higher incidence of PDA in preterm infants would be. The area under the ROC curves of PLT and PCT in the first 24 hours of life for prediction of hsPDA in preterm infants was 0.718 (95% CI: 0.671-0.768, $P=0.000$), 0.757 (95% CI: 0.712-0.814, $P=0.000$), respectively. The best cutoff values of PLT and PCT in the first 24 hours of life were $207.5 \times 10^9/L$ (sensitivity was 71.4%, specificity was 63.2%), 0.178% (sensitivity was 75.7%, specificity was 71.9%). The PLT $<207.5 \times 10^9/L$, $<150 \times 10^9/L$, $<100 \times 10^9/L$, and PCT $<0.178\%$, 0.09% in the first 24 hours of life are associated with 1.796, 2.324, 6.217, 1.828, and 5.579-fold increase in the risk of hsPDA in preterm infants when compared to the PLT $\geq 207.5 \times 10^9/L$, $\geq 150 \times 10^9/L$, $\geq 100 \times 10^9/L$, and PCT $\geq 0.178\%$, $\geq 0.09\%$. Logistic regression analysis identified the gestation age and PLT in the first 24 hours of life not to be the independent correlations of hsPDA in preterm infants ($P=0.932, 0.384$). The birth weight and PCT in the first 24 hours of life were independent risk factors for the occurrence of hsPDA in preterm infants ($P=0.000, 0.000$). The risk of hsPDA in preterm infants will be increased by 3.279-fold (95%CI: 2.369-4.479) when PCT in the first 24 hours of life is decreased by 0.10%.

Conclusions: The decreased PCT, rather than PLT, in the first 24 hours of life was independent risk factors for the occurrence of hsPDA in preterm infants at the 4-7 days after birth.

Audience Take Away:

- To learn the relationship between platelet counts (PLT) and plateletcrit (PCT) in the first 24 hours of life and the incidence of haemodynamically significant patent ductus arteriosus (hsPDA) in preterm infants.
- The decreased PCT, rather than PLT, in the first 24 hours of life was independent risk factors for the occurrence of hsPDA in preterm infants at the 4-7 days after birth.

Biography:

Dr. Yi Ren is a neonatologist with expertise in neonatal jaundice and patent ductus arteriosus. She currently serves as the attending physician of department of neonatology at the Affiliated Xuzhou Hospital of Southeast University in China. Dr. Ren was honored with young medical talent of Jiangsu province in 2016 and the top-notch talent of Xuzhou in 2017. She presides over the scientific research project of public health department of Jiangsu province financed ¥500,000 and the science and technology project of Xuzhou science and technology bureau financed ¥100,000. She has published 6 papers.

The effects on accuracy of image-based estimating neonatal jaundice with a smartphone APP in the different conditions

Yi Ren*, Xiangyu Gao, Di Huang, Bo Yang.

Department of Neonatology, The Affiliated Xuzhou Hospital of Southeast University, Xuzhou, Jiangsu, 221009, China

Objective: To study the effects on accuracy of automated image-based estimating neonatal bilirubin (AIB) with a smartphone APP in the different conditions.

Method: The jaundiced neonates were enrolled from in-patient neonatal ward of The Affiliated Xuzhou Center Hospital of Nanjing University of Chinese Medicine during August 2017 to December 2017. When the blood biochemistry including total serum bilirubin (TSB) need to be tested, the transcutaneous bilirubin (TcB) and AIB on the sternum were measured simultaneously, and on the glabella and the visual most yellow area were measured at the same time in some cases. The gender, gestational age, birth weight, the hours after birth and the detection period of time were recorded. The AIB were measured by OPPO R11 smartphone, and by Huawei Mate 8 and iPhone 6 at the same time in some cases, with an APP of mobile monitoring neonatal jaundice (BiliScan™). SPSS 20.0 software was used for data analysis. Data were compared by noninferiority trial, student's t test, ANOVA, Pearson correlation analysis, Bland-Altman plots consistency analysis or receiver operator characteristic (ROC) curve.

Result: A total of 247 sets of data were enrolled from 179 neonates in this study. The mean gestational age were (36.2±2.1) weeks, the mean birth weight were (2871±735) g. The mean difference of the absolute value of AIB-TSB and the absolute value of TcB-TSB was 0.77 mg/dl (<1 mg/dl), 95% confidence interval were 0.60~0.95 mg/dl, the accuracy of AIB was not inferior to the TcB with all data. The accuracy of AIB were not inferior to the TcB in the different subgroups of the hours after birth, gestational age, and the detection period of daytime as well. The mean difference of the absolute value of AIB-TSB and the absolute value of TcB-TSB was 1.47 mg/dl, 95% confidence interval were 1.08~1.87 mg/dl, the accuracy of AIB was inferior to the TcB in the subgroup of the detection period of night (n=64). There were good correlation ($r=0.784$) and strong consistency [96.4% (238/247) samples lay within the 95% limits of agreement (-4.75~5.71 mg/dl)] between AIB and TSB of all data. There were good correlation and strong consistency between AIB and TSB in the different subgroups of smartphone, the detection area, the hours after birth and gestational age as well. The correlation ($r=0.924$) and consistency (98.4%) between AIB and TSB of the detection period of daytime were obviously better than the detection period of night ($r=0.727$, 87.5%). The mean difference of the absolute value of visual value TSB and the absolute value of AIB-TSB was 2.13 mg/dl 95%CI 1.68~2.58 mg/dl. The accuracy of AIB was significantly superior to visual value. The area under the ROC curves of AIB for prediction of TSB>10 mg/dl, >15 mg/dl, >20 mg/dl were 0.94, 0.89, 0.84, the sensitivity were 93%, 75%, 50%, the specificity were 85%, 87%, 88%, respectively.

Conclusion: The accuracy of AIB was not inferior to the TcB, and significantly superior to visual value. There were good correlation and strong consistency between AIB and TSB. The different hours after birth, gestational age, smartphone and the detection area had little effects on the accuracy of AIB, the correlation and consistency between AIB and TSB. There were greater effects on AIB during the detection period of night. The better detection period of AIB was daytime with bright natural light.

Audience Take Away:

- To learn the effects on accuracy of automated image-based estimating neonatal bilirubin (AIB) with a smartphone APP in the different conditions.
- The accuracy of AIB was not inferior to the TcB, and significantly superior to visual value. There were good correlation and strong consistency between AIB and TSB. The different hours after birth, gestational age, smartphone and the detection area had little effects on the accuracy of AIB, the correlation and consistency between AIB and TSB. There were greater effects on AIB during the detection period of night. The better detection period of AIB was daytime with bright natural light.

Biography:

Dr. Yi Ren is a neonatologist with expertise in neonatal jaundice and patent ductus arteriosus. She currently serves as the attending physician of department of neonatology at the Affiliated Xuzhou Hospital of Southeast University in China. Dr. Ren was honored with young medical talent of Jiangsu province in 2016 and the top-notch talent of Xuzhou in 2017. She presides over the scientific research project of public health department of Jiangsu province financed ¥500,000 and the science and technology project of Xuzhou science and technology bureau financed ¥100,000. She has published 6 papers.

Technology in the promotion of breastfeeding

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There are several advantages of breastfeeding for the mother-baby dyad, regarding prevention, promotion and recovery of health, despite the scientific evidence, early weaning is still a frequent reality and new education strategies are necessary to contribute for changes in this scenario. Therefore, a randomized clinical trial was conducted to evaluate the effectiveness of an educational kit for breastfeeding - “EBFK” in puerperal counseling. Participants were 104 puerperal mothers (intervention group = 52 and control group = 52) from a large private hospital in the city of São Paulo and they were monitored up to 60 days after the baby’s birth. The results of the study confirmed that, in fact, “concrete / manipulative” didactic materials used in the Educational Breast Feeding Kit, in addition to verbal guidance, helped to establish / incorporate the information provided on breastfeeding, being able to provide puerperal mothers with more practical skills when necessary. The relevance of the implementation of this strategy in health institutions, is to effectively contribute to the nursing team and the maintenance of exclusive breastfeeding for longer. It was also found that the support network during the puerperium was fundamental for the maintenance of Exclusive Breastfeeding. As well as, to identify the sociodemographic and obstetric profile of the puerperal users of private health services, enabling health professionals, better planning in line with this population, since data from this public are scarce in the literature, strengthening existing positive aspects and the implementation of effective and safe strategies for a better future for children.

Rationale / Contribution:

- Despite the efforts of national and international entities to support and recommend Exclusive Breastfeeding, early weaning is still a reality.
- The maintenance of exclusive breastfeeding is multifactorial, however, using traditional support strategies and guidelines, it is not recommended (to maintain exclusive breastfeeding up to six months of life and complete feeding for two years or more).
- Based on the clinical experience of the researcher, she observes that only the verbal orientations normally performed are not somehow detained by the mothers, since during the hospitalization they express many difficulties and doubts in doing them.
- Other strategies, other than traditional ones, deserve and should be developed. One of these strategies is the use of technology (soft-hard) allowing the visualization of the guidelines, facilitating the understanding of the content to be informed with the use of the “EBFK – Educational Breast-Feeding Kit”.
- The educational proposal can minimize the difficulties in breastfeeding and contribute for the maintenance of Exclusive Breastfeeding for longer.
- More scientific evidence should be developed, as well as the use of the Educational Kit in other realities, effectively contributing to a better future for children.

Biography:

Erdnaxela Fernandes C. Souza - Nurse, specialist in Obstetric Nursing; Public health; Management and Audit. Master’s in nursing. PhD in Health Sciences from UNICAMP - SP. She currently works as an obstetrical nurse at the Hospital Samaritano de São Paulo - Brazil, with extensive experience in maternal and child care; Lecturer at the Undergraduate and Graduate Program in Nursing at the University of Guarulhos - UNG; Supervisor of the Center for Obstetric and Neonatal Regulation of the Municipality of São Paulo and Consultant in Breastfeeding and Newborn Care in Brazil.

The low-level laser therapy in the prevention of oral mucositis in pediatric cancer patients at children's hospital of Brasilia

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Statement of the Problem: Oral mucositis (OM) manifests in more than 60% of patients undergoing chemotherapy, impacting their quality of life, increasing morbidity and mortality rate. Therefore, it is important establishing a suitable protocol for the treatment and also the prevention of OM. Low-level laser therapy (LLLT) is an effective method of prevention, but there is no consensus regarding an appropriate dosimetry. The purpose of this study is to verify effectiveness of preventive laser in children undergoing treatment for acute lymphoblastic leukemia (ALL) at the Children's Hospital of Brasilia (HCB).

Methodology & Theoretical Orientation: Patients who use Methotrexate ($>1\text{g/m}^2$), received application of LLLT in order to prevent OM, starting at a day after the beginning of the cycle, with three consecutive applications in the same week. They were selected and distributed in two groups of 22 patients. G1: It was applied an energy density of 2J/point at an approximate distance of 1 cm, touching the tissue during 2s. G2: It was applied an energy density of 2J/point at a distance of 2 cm between points, touching the tissue during 2s. Patients returned on the 8th day to evaluate their oral cavity. Statistical analysis was performed by using SSPS Statistics. Findings: During 2 years 37.68% of patients had OM manifestation of varying degrees during chemotherapy. In this study patients allocated in G1, 88.5% showed no signs of OM and G2 92.9% also showed no signs of OM.

Conclusion & Significance: The preventive use of LBP has been beneficial, and that irradiated patients in less points (G2) had better answer. And those who showed predisposition an OM, had less severe form. The adoption of an appropriate protocol of the preventive use of LBP, search for a dental treatment led to a scenario of nonexistence of severe OM manifestations in pediatric patients.

Audience Take Away:

- The laser therapy demonstrates effectiveness for oral mucositis prevention, reducing the severity in the cases of patients who presented manifestations, but most of them were effective in the absence of lesions.
- It is important to emphasize that the use of low-power laser in the prevention and treatment of oral mucositis does not exclude the need for a favorable dental condition, adequate oral hygiene and whenever possible a mouth- in order to eliminate possible infectious foci of the mouth, a crucial action so that these patients are even less likely to develop the lesions, even if there are other factors predisposing to oral mucositis.
- We believe that the implantation of the protocol of application of preventive laser therapy is extremely important for the quality of life of the pediatric patients who undergo oncological treatment. With great acceptance by the patients, being a therapy of easy implantation and calibration of the dentists surgeons.

Biography:

Keyse Loyanne Batista da Silva is specialist in Pediatric Dentistry, Specialist in pediatric multidisciplinary Oncology by the Israelite Institute Albert Einstein, Qualified in Laser Therapy. Qualified in Hospital Dentistry and Master in Health Sciences, by the University of Brasilia (UNB). She is currently Technical Supervisor of Dentistry service at the Children's Hospital of Brasilia José Alencar (HCB) and Professor responsible for the disciplines of patients with special needs and hospital dentistry of the Dentistry course of the University Center of the Federal District (UDF). She has experience in dentistry with emphasis on Hospital dentistry, oncology and pediatric hematology.

Notes

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